

New Jersey **BikeSchool**

An on-bike skills curriculum based on **BIKEOLOGY**



RUTGERS

Edward J. Bloustein School
of Planning and Public Policy

NEW JERSEY
Safe Routes to School



www.saferoutesnj.org



U.S. Department of Transportation
**Federal Highway
Administration**

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- Jennifer Laurita, certified League of American Bicyclists Instructor and Coach, experienced teacher with a Master's Degree in Secondary Science Education, and author of Anatomy of Cycling: A Trainer's Guide to Cycling.

New Jersey Safe Routes to School

The mission for the New Jersey Safe Routes to School Program is to empower communities to identify and overcome barriers to walking and cycling to school through the creation of partnerships and implementation of projects and programs that make walking and biking to and from school appealing and safe daily activity.

The New Jersey Safe Routes to School Resource Center

The New Jersey Safe Routes to School Resource Center assists public officials, transportation and health professionals, and enables the general public in creating safer and more accessible walking and bicycling environments for children in New Jersey through education, training, and research. The Center is supported by the New Jersey Department of Transportation through funds provided by the Federal Highway Administration.

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Introduction

Bicycling is a fun and healthy form of transportation, bringing many benefits to both the cyclist and to his or her community. It is also the first independent mode of travel for many children, aside from walking. Early, hands-on education of bicycle riding skills and behaviors, then, is critical to developing good habits and the confidence necessary to facilitate a lifetime of safe and enjoyable riding. To advance this goal, the New Jersey Safe Routes to School Resource Center (NJSRTS) is providing a modified version of the Bikeology bike safety curriculum as a resource to educators.

Bikeology was published by SHAPE America (formerly the American Alliance for Health, Physical Education, Recreation and Dance [AHPERD]) in 2014, with funding from the National Highway Traffic Safety Administration (NHTSA). Developed in consultation with physical education, bicycle education, and injury prevention experts, the curriculum was pilot-tested with nine teachers and over 300 students to evaluate its effectiveness.

Though Bikeology is oriented towards middle- and high-school students, many of the lessons may also be used in elementary-school classes. With this in mind, NJSRTS has condensed Bikeology to focus on lessons most appropriate for young children. The revised curriculum that follows omits the more advanced lessons from Bikeology, as well as in-class worksheets and other activities that do not involve physical activity. The complete, unedited curriculum may be found by visiting www.shapeamerica.org and searching for “Bikeology”.

For more information on providing safe bicycling facilities, model policies for bicycling to school, and our school bike parking guide, contact the New Jersey Safe Routes to School Resource Center:
website: www.saferoutesnj.org email: srts@ejb.rutgers.edu

We have identified a number of priority lessons that we feel are critical for elementary school children to learn. If time or resource limitations prevent covering the entire curriculum, we recommend referring to these priority lessons, indicated in the table of contents with a ★ symbol. Instructors, however, are welcome to adapt the curriculum as appropriate to meet their particular students’ needs.

Program Evaluation

To evaluate the effectiveness of the Bikeology curriculum, we have included pre- and post-tests and a behavior survey at the end of this curriculum packet. The pre-test should be administered to students prior to beginning instruction, while the post-test should be given at the conclusion of the curriculum. Instructors may administer the behavior survey may at any time.

For information about evaluation, see *Teaching children about bicycle safety: An evaluation of the New Jersey Bike School program*¹, available free of charge at www.sciencedirect.com.

¹ Lachapelle, U., Noland, R.B. & Von Hagen, L.A., 2013. Teaching children about bicycle safety: An evaluation of the New Jersey Bike School program. *Accident Analysis & Prevention*, 52, pp.237–249.

RIDE ON!

BIKEOLOGY



American Alliance for
Health, Physical Education,
Recreation and Dance



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DISCLAIMER

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SECTION 1

Curriculum Overview

PURPOSE

This curriculum provides physical education teachers and recreation specialists the knowledge and resources to implement an on-the-bicycle safety education program for youth grades 6-12. It contains the necessary preparations and minimum-level benchmarks to meet when teaching safe bicycle riding and is suitable for enhancing skill at the recreational biking level.

The Department of Transportation's National Highway Traffic Safety Administration (NHTSA) funded this curriculum as one of many education and training opportunities to increase bicycle safety and reduce the risk of injury and fatalities among youth while bicycling throughout the United States. As recipients of NHTSA's federal funding, the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) is committed to furthering the safety of bicyclists while supporting the fight against obesity by increasing physical activity and teaching youth to enjoy lifelong physical activity.

Physical education teachers and recreation specialists can have a direct impact on the health and safety of youth by teaching and reinforcing safe bicycling skills and behaviors around traffic. As a result, youth will gain greater confidence and enjoyment when bicycling and be more likely to use bicycling as a form of activity for a lifetime.

Elementary school children (grades 4-5) may be exposed to bicycle safety via school presentations or a one-time cycling skills clinic or bicycle rodeo. This curriculum, however, focuses on reaching pre-teens and teens to expose, reinforce and apply knowledge to on-the-bicycle skills to enhance control of the bicycle while riding. The focus on bicycle safety with pre-teens and teens is important because:

- Pre-teens and teens are more likely to be using a bicycle as a means of transportation, encountering motor vehicle traffic while riding their bicycles as a vehicle on the road, and thus increasing their risk of traffic-related injury and death.
- Traffic-related crashes are the result of behaviors of both bicyclists and motorists. Teaching safe bicycling behaviors (skills) can decrease riding risks and potentially save lives.
- Bicycle safety education, including riding skills, becomes more complex as children mature. As their likelihood of interacting with motorized vehicles increases, children require a better understanding of the rules of the road and their responsibility as a vehicle as a part of traffic.

The middle school and high school years are the ideal times to begin teaching traffic safety concepts to children before they become licensed drivers at ages 16, 17 or 18. Learning the rules of the road and consistently applying them to their own bicycling will pay benefits now and in the near future. Defensive walking, biking and driving use similar concepts and learning to anticipate hazards helps walkers, riders and drivers avoid potentially troublesome traffic situations. Equally important are the benefits of establishing regular physical exercise for children, which bicycling provides. Consider data provided by the Centers for Disease Control and Prevention (CDC) warning that childhood obesity has more than tripled in the past 30 years. While obesity is the result of several factors including the expenditure of fewer calories than consumed and is affected by various genetic, behavioral and environmental factors,^{5,6} bicycling is a fun way to increase physical activity toward efforts to combat obesity.

UNIQUENESS OF THE CURRICULUM

This curriculum is unique for the following reasons. It was:

1. Written to meet National Standards for K-12 Physical Education, standards used by physical education teachers;
2. Found effective in increasing both bicycle safety knowledge and skills of students; and
3. Developed to address varying bicycle skill levels of students.

CURRICULUM DEVELOPMENT

This curriculum is the result of a cooperative agreement between NHTSA and AAHPERD to develop an evaluated model curriculum for national use by physical education teachers and recreation specialists, in a school or recreation setting, to teach bicycle safety and related skills to middle and high school-aged youth with varying levels of bicycling abilities.

The agreement included the development of the youth bicycling curriculum, training teachers to teach the curriculum, teachers pilot testing the curriculum with youth (completed by nine trained teachers from Virginia, Tennessee and Alabama), and conducting a formal evaluation. The evaluation included the instructor's reaction to curriculum activities, ease in teaching the activities, receptivity of students and changes in student knowledge of bicycle safety and performance of skills before and after the program. The evaluation of the skill-based activities implemented by these pilots revealed this curriculum effectively increased both bicycle safety knowledge and skills for students.

The project included the development and testing of two training workshops. The first instructed teachers to use the curriculum effectively and ensured uniformity of teachers' knowledge about bicycling and bicycle safety principles prior to teaching the curriculum to children in an effort to promote uniform and consistent instruction. These select teachers tested the curriculum and the efficacy of their training workshop to over 300 students. The second training, a train-the-trainer workshop, prepared a select group of AAHPERD members to teach the curriculum-training workshop to teachers and recreation specialists. Twelve trainers completed this workshop, an initial effort to build a cadre of curriculum trainers across the country.

AAHPERD will continue to offer these workshops, and continue to expand and support the curriculum trainers beyond the life of this funded project. For more information about bicycle safety, see the National Highway Traffic Safety Administration (NHTSA) at: www.nhtsa.gov/bicycles.

HOW TO USE THIS CURRICULUM

Use this curriculum in varying settings (school, after-school, clubs and camps) based on your timeframe and available resources. Instructors are encouraged to teach as much of the materials as time will allow. At a minimum, teach the skill-based activities in Units 1, 2 and 3 as these activities are the essential skills needed to create the foundation for safe bicycling. Regardless of students' skill level or previous bicycling knowledge, complete the skill-based activities in these units consecutively before proceeding to any of the remaining units.

Within each of the seven units, there are three types of activities: introductions, skill-based activities with rubrics and closures. Occasionally, the introduction and closure activities have more than one option. Instructors should choose the appropriate activities that fit into the available class time when developing lesson plans. If class time is too short to allow for all three types of activities, the lessons should focus on completing the skill-based activities.

Consider using the curriculum's rubrics to assess student performance for each of the skill-based activities. Each of these activities has a supporting rubric. All of the rubrics were included as part of the curriculum evaluation with the exception of Unit 7, "Riding for Fitness."

This curriculum recognizes that classes will often be comprised of students with varying skill levels. To accommodate this reality, there are suggestions for differentiating instruction when necessary to meet the needs of all skill levels. However, there are several identified activities for students with intermediate or advanced bicycling skills only.

ACKNOWLEDGMENTS

AAHPERD wishes to thank the team members for their professional expertise in the field of teaching physical education, bicycling education and injury prevention. The team focused on special aspects of this project based on their expertise including curriculum development, assessment, evaluation and teacher training.

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SECTION 2

Curriculum Introduction

Bicycling is a fun, healthy activity for both children and adults. A lifelong activity, it can be enjoyed by people of all ages and fitness levels. Riding a bicycle helps improve muscular fitness and blood circulation, lowers stress levels, can be a valuable part of a weight loss program and can provide hours of enjoyment.

Despite the numerous health benefits, there are some inherent dangers of riding a bicycle. Every year U.S. emergency rooms treat nearly one million children for bicycle-related injuries. Although often thought of as a toy, bicycles are associated with more childhood injuries than any other consumer product, except the automobile. For many children, the bicycle is their first form of independent transportation, and while most master the skills needed to ride a bicycle, they may not learn the skills required for safe and competent riding, especially in traffic. Providing a safe learning environment - such as a school - where children can make mistakes, might avoid potentially fatal mistakes in an unforgiving setting.

For these reasons and many more, the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) developed this bicycle safety curriculum for use in a school or recreational setting.

CURRICULUM LAYOUT

The curriculum consists of seven units and parent handouts. Each unit contains three types of activities: introductions, skill-based activities with corresponding rubrics and closures. The seven units are:

- Unit 1:** Getting Ready to Ride
- Unit 2:** Bicycle Handling Basics
- Unit 3:** Emergency Bicycle Handling Skills
- Unit 4:** Advanced Bicycle Handling Skills
- Unit 5:** Rules of the Road for Bicycling
- Unit 6:** Bicycle Maintenance
- Unit 7:** Riding for Fitness and Health

UNIT COMPONENTS

Each unit consists of the following components:

- Objectives with related measurements indicating what students can be expected to accomplish upon the completion of the unit
- Corresponding National Standards for K-12 Physical Education
- Key vocabulary words
- Activities designed to teach various skills and to meet unit objectives.
- Cross-curricular activities to enhance the comprehension and reinforce what is learned.

ACTIVITY ELEMENTS

Each activity contains the following elements to assist with implementation:

- The skill level (beginner, intermediate or advanced) associated with each activity;
- An estimated timeframe for completion;
- Specific equipment needed;
- Teacher overview summarizing the activity;
- Preparations necessary for the activity;
- Directions for conducting the activity;
- Assessments to evaluate if students have met the objectives;
- Important safety rules that must be followed;
- Differentiating instruction to identify options for students with varying skill levels;
- Safety rules that must be followed; and
- Best practice information

Given the variability in the length of class times, instructors can teach activities in multiple class periods, as necessary. The number of activities taught within one class period depends on a number of variables, including the instructor's experience in teaching, number of students per class, skill levels of students, number of bicycles and helmets available per class and available space for instruction.

ASSESSMENTS

There are a handful of existing bicycle safety curricula across the country. However, what sets this curriculum apart from others is that it has been evaluated for effectiveness. Teachers, who pilot tested the curriculum and assessments, taught the curriculum and used the assessment tools to measure that students did experience an increase in bicycle safety knowledge and bicycle skills toward becoming a safer and more competent rider, in preparation for riding in a roadway as a vehicle in traffic. The assessments used in the evaluation period are included in curriculum for you to use. They include student or peer assessments and teacher assessments of student's knowledge and skill level.

DIFFERENTIATING INSTRUCTION

Although the primary skill level for each activity is identified, most classes will include students of varying skill levels. To address this common situation, examples of differentiated instruction are provided. However, for safety reasons, there are some activities that are truly intended for intermediate or advanced riders only based on the teachers assessment.

PARENT INVOLVEMENT

Children are part of a family unit and inclusion of the family unit to reinforce the correct information is a critical necessity when trying to bring about behavior change. Overall, teachers are encouraged to determine the best means to reach parents, emphasizing the following basic concepts:

- Bicycling is a form of lifelong physical activity; it's something the family can do together and it's fun!
- Safe bicycling behavior should be the societal norm. This starts within the family unit, with the expectation that when bicycling, everyone (adults and youth) will: (a) wear a properly fitted helmet; (b) check equipment for safety before each ride; (c) follow the rules of the road; and (d) model safe riding behaviors.
- Parents and youth must practice safe bicycling behavior at home and in the community, not just in the instructional setting. "What Every Parent Should Know" parent tip sheets address important aspects of bicycle safety and identify ways in which parents, grandparents and other adults can support what their child is learning. They should serve as "Roll" models when bicycling and driving around bicyclists. Parent tip sheets are specifically encouraged for elements covered in Units 1, 2 and 5.
- You may choose to use any of the additional parent tip sheets and handouts included to assist you in engaging parents. Use them not only for this class, but as part of your school bike to school events or community activities where safety education can be incorporated.



SECTION 3

Curriculum Units



15	Unit 1: Getting Ready to Ride
57	Unit 2: Bicycle Handling Basics
111	Unit 3: Emergency Bicycle Handling Skills
121	Unit 4: Advanced Bicycle Handling Skills
137	Unit 5: Rules of the Road for Riding
179	Unit 6: Bicycle Maintenance



UNIT 1

Getting Ready to Ride

OBJECTIVES

At the conclusion of this unit the student will be able to:

1. Describe key concepts of safe riding, as measured by participation in peer discussion about bicycle safety. (Cognitive)
2. Describe key concepts of safe riding, as measured by completion of the brainstorming activity. (Cognitive)
3. Describe key concepts of safe riding, as measured by completion of the *Safe Riding* worksheet. (Cognitive)
4. Describe how a properly fitted bicycle helmet protects the brain, as measured by successful completion of the *Bicycle Helmet Function* worksheet. (Cognitive)
5. Demonstrate exceptional or reliable helmet fit as measured by the helmet fit rubric. (Psychomotor)
6. Demonstrate exceptional or reliable bicycle fit, as measured by the bicycle fit rubric. (Psychomotor)
7. Identify the basic parts of a bicycle, as measured by successful completion of the *Bicycle Parts* worksheet. (Cognitive)
8. Demonstrate exceptional or reliable performance of the ABC Quick Check, as measured by the ABC Quick Check rubric. (Psychomotor)
9. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
10. Describe key concepts from Unit 1, bicycle fit, helmet fit and ABC Quick Check, as measured by participation in peer discussion about bicycle safety and by providing responses to questions in journals. (Cognitive)
11. Describe feelings about the ability to ride safely and enjoy bicycling, as measured by providing responses to questions in journals. (Affective)

NATIONAL STANDARDS FOR K-12 PHYSICAL EDUCATION

Standard 1

The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

Standard 2

The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.

Standard 3

The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4

The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5

The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

KEY VOCABULARY/TERMS

2-2-2-2 Rule: A classroom management and bicycle safety strategy that encourages students to keep: 2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; and 2 fingers on the brake lever(s).

ABC Quick Check: A series of steps to inspect the basic functioning of a bicycle that should be performed before each ride. A= Air; B=Brakes; C=Chain/Crank; Quick=Quick release; and Check=Check it over

Brake: The bicycle part used to stop a bicycle. Rim brakes and disc brakes are operated by brake levers, which are mounted on the handlebars. Pedaling backward operates coaster brakes.

Brake levers: The bicycle parts attached to the handlebars, squeezed by the hands to activate the brake.

Cassette: A group of stacked gears on the rear wheel of a bicycle.

Chain: The bicycle part that moves the bicycle by transferring power from the pedals to the drive-wheel.

Chain stay: The tube on the rear of the bicycle frame running from the bottom bracket and parallel to the chain.

Chainring: One of the front gear(s), attached to a crank.

Cog: The tooth on the rim of a gear wheel.

Consumer Product Safety Commission (CPSC): A federal organization established to protect the public against unreasonable risks of injury from consumer products.

Crank: A device for transmitting rotary motion, consisting of a handle or arm attached at right angles to a shaft.

Derailleur: An assembly of levers that moves the chain.

Down tube: The tube on a bicycle frame running from the head tube to the bottom bracket.

Fork: Connects the bicycle's frame to its front wheel and handlebars, allowing steering by virtue of its head tube.

Handlebars: A lever attached to the head tube of the fork, allowing steering. It also provides a point of attachment for controls and accessories.

Handlebar stem: A bracket attaching the handlebars to the head tube of fork.

Head tube: The tube on a bicycle frame that contains the headset.

Headset: The bearings that form the interface between the frame and fork head tube.

Head barrier: Something used to separate the child's head from the helmet to minimize the transmission of communicable disease (lice) if helmets are shared among students.

Helmet: Personal protective safety equipment worn on the bicyclist's head to protect the brain from impact.

Pedals: The bicycle parts where the bicyclist's feet rest; pushed in a forward motion, they propel the bicycle ahead.

Quick Release: A lever for releasing wheels; a lever to adjust seat post.

Saddle: The bicycle seat.

Seat post: The post that supports the saddle; it slides into the frame's seat tube and is used to adjust riding height.

Seat tube: The bicycle part that runs along the bike frame from the seat to the bottom bracket.

Seat stay: Connects the top of the seat tube to the rear dropout.

Spokes: The bicycle parts that connect the wheel rim to hub. Most bicycles usually have 36 spokes.

Straddle: To sit or stand with one leg on each side of bicycle.



Top tube: The bicycle part connecting the head tube to the seat tube.

Valve stem: A port for adding or releasing air from the tire's inner tube. Two types are commonly used: Presta and Schrader. See page 74.

ACTIVITIES

Each unit should include three types of activities: introduction, skill-based with assessments and closure. In some cases, more than one activity option is offered for the introduction and closure. When developing your lesson plans, choose the activities that fit into your allotted class time. If class time is too short to allow for all three types of activities, focus your lesson on the skill-based activities.

Introduction: Choose from the following activities to introduce this unit of learning.

- Bicycle Safety Videos
- Brainstorming
- Walk & Share

Skill-Based with Assessments: Each skill-based activity is associated with an assessment to measure student knowledge and application of the identified skill. Depending on the amount of class time available and the skill level of students, more than one of the following skill-based activities may be completed during one class. Complete all skill-based activities in this unit before moving to the next unit. This will ensure that students have the safety knowledge and basic skills considered necessary to practice safe bicycling behaviors.

- Bicycle Helmet Function
- Bicycle Helmet Fit
- Bicycle Fit
- Bicycle Parts
- ABC Quick Check

Closure: The following activities can be used to conclude this unit of learning. If desired, these activities can be assigned as homework.

- Walk & Share
- Journal Writing

EQUIPMENT NEEDED

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polypots or chalk to mark riding course
- Pencils
- Student worksheets and journals
- *Bike Safe Bike Smart* (DVD)
- *Ride Smart - It's Time to Start* (DVD)
- Audiovisual equipment

- Poster board, art paper, rolls of paper or butcher paper
- Markers
- Tape
- *Safe Riding* worksheet
- *Bicycle Helmet Function* worksheet
- *Bicycle Helmet Fit* worksheet
- *Bicycle Fit* worksheet
- *Bicycle Parts* worksheet
- *ABC Quick Check* worksheet
- *Bicycle Safety Word Search* worksheet
- *Bicycle Safety Crossword Puzzle* worksheet
- Consumer Product Safety Commission (CPSC) brochure: *Which Helmet for Which Activity?*
www.google.com/url?sa=t&rct=j&q=CPSC+%2B+What+Helmet+For+What+Activity&source=web&cd=1&ved=OCFoQFjAA&url=http%3A%2F%2Fwww.cpsc.gov%2Fcpscopy%2F349.pdf&ei=wtKzT4DkA4Gu9ATVva3mBA&usg=AFQjCNGyQ4ivEH_qCOgYQUKuIKROz1rZ2w
- A bicycle helmet with Consumer Product Safety Commission (CPSC) safety label
- A multi-use helmet with CPSC label (optional)
- Cracked helmet or helmet involved in a prior crash (optional)
- Melon or gelatin mold (optional)

CROSS-CURRICULAR ACTIVITIES

Language Arts

- Learn the vocabulary for the parts of the bicycle and helmet.
- Journal writing

Science

- Demonstrate helmet construction and effectiveness and head impact.
- Learn how to locate the Pounds per Square Inch (PSI) range on the tire. Using the air pressure gauge on the tire pump, determine the current PSI of each tire.

History

- Explore the development of bicycle helmet safety standards.

Social Studies

- Identify the process to implement a statewide helmet law.

Math

- Demonstrate how to measure a bicycle frame



SKILL-BASED ACTIVITY

Bicycle Helmet Function

- Timeframe** **Beginner:** up to 15 minutes
Intermediate: up to 10 minutes
Advanced: up to 10 minutes
- Objective** At the conclusion of the activity, the student will be able to:
1. Accurately describe how a properly fitted bicycle helmet protects the brain, as measured by successful completion of the *Bicycle Helmet Function* worksheet. (Cognitive)
- National Standards** Standard 2
Standard 4
- Equipment**
- A cracked helmet from a previous crash (optional)
 - Consumer Product Safety Commission (CPSC) brochure: Which Helmet for Which Activity?
 - <http://www.cpsc.gov/PageFiles/122399/349.pdf>
 - A bicycle helmet with Consumer Product Safety Commission (CPSC) safety label
 - A multi-use helmet with CPSC label (optional)
 - Pencils
 - *Bicycle Helmet Function* worksheet
- Teacher Overview** This activity helps students understand what happens to the brain when it is injured and how bicycle helmets are constructed to help prevent injuries. A visual demonstration of the effectiveness of a bicycle helmet in protecting the brain from injury can be performed as part of this activity to reinforce discussion points.
- Preparation**
1. Determine if there is a state or local bicycle helmet law/regulation/ordinance that affects students and include in the lesson. For state laws see: <http://www.bhsi.org/mandator.htm>; for local laws, search for bicycle laws and your county or contact local law enforcement.
 2. Make appropriate number of copies of *Bicycle Helmet Function* worksheet.

Directions

1. Introduce this activity using the following prompt:

Today, we will be learning how a helmet works and how it helps protect your brain. To better understand why it is so important to protect your brain from injury, we are also going to learn what can happen if your brain is injured.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: What is the purpose of a bicycle helmet?

A: Any of the following:

- A bicycle helmet reduces the risk of a brain injury.
- Other answers may be accepted.

Q: How does a helmet protect your head if you crash?

A: Any of the following:

- The helmet absorbs the crash forces instead of your brain.
- Other answers may be accepted.

Q: Why should you wear a helmet every time you ride?

A: Any of the following:

- A crash can happen at any time regardless of rider skill or length of a trip.
- Other answers may be accepted.
- Discuss brain injuries and the importance of prevention. The information provided supports this discussion; adjust as needed based on the age/developmental level of the students. The point to emphasize to students is for them to tell an adult or have a friend tell an adult, if they hit their head. Additional information about brain injuries and how to prevent them can be obtained from the Centers for Disease Control and Prevention at: <http://www.cdc.gov/TraumaticBrainInjury/index.html>.

How does the brain get hurt?

Most brain injuries in children occur because of falls, car crashes and bicycle/sports injuries. Sometimes a child hits his head hard enough to hurt the brain inside. The brain can be damaged if it bounces against the inside of the skull. When this happens a person can have trouble doing things they were able to do before.

What happens if your brain is hurt?

Anytime your brain is hurt, your ability to do things you normally do will be affected. If a brain injury is suspected, you need to go to the emergency room so a medical professional can assess you. You might need special pictures taken like a CT (computed tomography) scan or an MRI (magnetic resonance imaging) to make certain you do not have a serious injury like a fracture or bleeding in your brain. Brain injuries can be very serious and may result in death if not treated. Even if you do not have a serious brain injury, you may have a concussion. A concussion is also an injury to the brain, but to a lesser degree and often there is no visible sign of injury to the head. Loss of consciousness may or may not happen. The best treatment for a concussion is rest. The brain can be hurt so seriously that you could be unconscious for several hours, days or permanently. This is called a coma.

What happens after a brain injury?

Since your brain controls everything you think and do, a brain injury may cause your brain to “forget” how to do some things, like talk, walk, eat, remember things, understand other people’s conversations or do physical activities – like riding a bicycle. Your brain sends messages to the rest of your body to allow it to carry out these skills; sometimes these skills have to be relearned following a brain injury. Most people fully recover from a “mild” brain injury like a concussion. Recovery from moderate to severe brain injuries can take many months to years. With very severe brain injury, a person can die. Most people who die from head injuries resulting from bicycle crashes were not wearing a helmet at all or were wearing it incorrectly. The best way to protect your brain is to wear a properly fitted helmet every ride.



Is It a Concussion?

www.cdc.gov/concussion/signs_symptoms.html

SYMPTOMS OF CONCUSSION USUALLY FALL INTO FOUR CATEGORIES:

Thinking/ Remembering	Physical	Emotional/ Mood	Sleep
Difficulty thinking clearly	Headache Fuzzy or blurry vision	Irritability	Sleeping more than usual
Feeling slowed down	Nausea or vomiting (early on) Dizziness	Sadness	Sleep less than usual
Difficulty concentrating	Sensitivity to noise or light Balance problems	More emotional	Trouble falling asleep
Difficulty remembering new information	Feeling tired, having no energy	Nervousness or anxiety	

Some of these symptoms may appear right away, while others may not be noticed for days or months after the injury or until the person starts resuming their everyday life and more demands are placed upon them.

What to do if a concussion is suspected:

- Stop the activity
- See a medical provider for evaluation
- In rare cases, a dangerous blood clot may form on the brain in a person with a concussion and crowd the brain against the skull. Seek immediate help from a health care professional or emergency department if any of the following danger signs appear after a bump, blow or jolt to the head or body.
- Serious symptoms requiring immediate medical attention (contact a medical professional) include:
 - Headache that gets worse and does not go away.
 - Weakness, numbness or decreased coordination.
 - Repeated vomiting or nausea.
 - Slurred speech.
 - Looks very drowsy or cannot be awakened.
 - One pupil (the black part in the middle of the eye) larger than the other.
 - Convulsions or seizures.
 - Cannot recognize people or places.
 - Getting more and more confused, restless or agitated.
 - Unusual behavior.
 - Loss of consciousness (*a brief loss of consciousness should be taken seriously and the person should be carefully monitored*).

3. Discuss the different types of helmets.

The following information is meant to support this discussion. Adjust what is shared as needed for the age /developmental level of the students.

- **Helmets for Different Activities:** There are different types of helmets for different types of activities. Helmets are specifically designed to protect the brain from injuries associated with specific sports. It is important to use the right helmet for the right sport to protect the brain appropriately from injury. You would never wear a football helmet to go bicycling. Some multi-use helmets are suitable for use with bicycling. The manufacturer's label will state this specifically.
- For additional information see the Consumer Product Safety Commission (CPSC) brochure: *Which Helmet for Which Activity* at: www.cpsc.gov/PageFiles/122399/349.pdf



Helmet Effectiveness Demonstration. Performing a demonstration of the effectiveness of a bicycle helmet in protecting the brain from injury can be included in this activity to visually reinforce the information that has been provided to students. Several examples of projects to accomplish this can be found in the NHTSA Demonstrating Helmet Effectiveness—A How-to Guide at: www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811110.pdf.

4. Discuss safety certifications used for bicycle helmets.

Share age/developmentally appropriate information regarding bicycle helmet safety standards, including the minimum safety standard established by the Consumer Product Safety Commission (CPSC). For additional information about bicycle helmet safety standards, see the Bicycle Helmet Safety Institute (BHSI) at: <http://www.bhsi.org/>.

Consumer Product Safety Commission (CPSC) Safety Standard:

Beginning in March 1999, all bicycle helmets sold and manufactured in the U.S. have to meet the Consumer Product Safety Commission (CPSC) bicycle helmet safety standard, to ensure a minimum level of protection against head injury. This safety standard addresses:

- Head impact protection in a crash: G-forces must be below 300g.
- Instruct students to always look for the sticker that says the helmet meets CPSC safety standards.
- Show students a helmet with the sticker and have students find the sticker on their helmet.
- Children's helmets and head coverage: CPSC standard has two categories of helmets: helmets intended for persons older than one year and helmets intended for persons older than five years. The first category applies to young children and the second to older children and adults. The only difference in the requirements for these two categories is in head coverage. The helmets intended for young children are subject to impact testing over a greater area of their surface.
- Chin strap strength
- Helmet stability
- Peripheral vision

5. Discuss replacing helmets.

- Bicycle helmets are designed to be replaced after a crash, even if you can't see the damage.
- If a helmet has even slight damage and is not replaced, it will not protect the brain from injury if the user is in a crash.
- Slight damage or small cracks may not be noticeable to the naked eye. If you fall and hit your head, replace the helmet.

6. Discuss how helmets are constructed to protect the brain from injury.

The information below is meant to support this discussion. Adjust what is shared as needed for the age/developmental level of the students. To reinforce the construction of the bicycle helmet, an option is to show students a bicycle helmet that has been involved in a crash, if one is available.

- **Front and back of helmet:** The front and back of the helmet protect the various parts of the brain (the frontal lobe, occipital lobe and the cerebellum) from impact. Make sure the helmet is level on the head and low on the forehead, no more than two finger widths above the eyebrow, to fully protect the frontal lobe.

Reminder:

Crash and Trash
or One and Done.

Other Helmet Safety Standards

American Society for Testing Materials (ASTM): Prior to the CPSC standard, the ASTM1447 standard was the most widely used bicycle helmet safety standard in the U.S. Both standards are basically identical except that the ASTM standard is voluntary. Manufacturers can label the helmet as meeting the ASTM1447 standard without having to verify with independent testing. Bicycle helmets are often still labeled as meeting the ASTM1447 standard in addition to having the CPSC label. The ASTM standard for biking and recreational inline skating are identical. Aggressive skating and skateboard helmets have their own ASTM standard designed for multiple hits with lesser impact severity. ASTM has other standards that are currently used for helmets for other activities such as skating, skiing and downhill bicycle racing.

American National Standards Institute (ANSI): The ANSI standard for bicycle helmets was a common standard in the mid-1980s through the early 1990s. However as of 1995, the ANSI standard was considered to no longer be a valid certification standard. Some helmets may continue to be labeled as meeting the ANSI standard, however it is best practice to ignore these labels and look for one of the currently recognized standards.

Snell Memorial Foundation (Snell): Snell helmet safety standards have stricter head impact levels higher than other standards for helmets for a variety of different activities such as motorcycle, bicycle, equestrian, ski and others. Snell also collects helmets from the retail setting for additional follow-up testing to ensure the standard is being followed as a manner to ensure quality control. Manufacturers pay additional money for Snell testing, which is then passed on to the consumer. The Snell standard is usually found on higher-end helmets and generally considered to be a stricter standard. However, there is debate over the types of impact best suited for those helmets with the Snell standard. In order to perform at higher head impact levels the foam needs to be quite stiff resulting in less protection at lower impact levels where the stiffer foam may not crush at all. Ultimately, the type of bicycle riding that will occur should be a good indicator of the necessary standard. There are three basic Snell bicycle helmet standards.

1. Snell B90: This standard is very similar to the CPSC standard.
2. Snell B95: This standard resulted from a revision to the B90 standard in that it requires more head coverage and has slightly higher head impact drop heights.
3. Snell B94: This standard is a true multi-sport standard for non-motorized activities that involve speed, balance and agility. A helmet certified for only bicycling will not provide the necessary protection for activities such as aggressive in-line skating and skateboarding. The opposite is true as well because of the different types of potential injuries with each of these activities. However, the N-94 standard requires that the helmet pass multiple impact tests to the back of the helmet as well.

- **Shell:** The outer shell of a helmet should be smooth, hard and slick to limit sliding resistance with the road. This will help to decrease the risk of spinal cord injury that may occur if the helmet does not slide smoothly on the road surface.
- **Foam:** The foam reduces the peak energy of a sharp impact to the head and brain by crushing in on itself. As the foam crushes, it converts a small part of the crash energy to heat and, most importantly, slows the stopping process. When the foam is crushed to its limit, the rest of the impact energy is passed on to the head and brain. The foam does not bounce back because this would make the impact worse. Crushing the cell walls destroys the impact management ability for most stiff foams, so the helmet has to be replaced after a single impact, even if there isn't visible damage. The foam can also recover some of its thickness over a period of hours, but not its ability to manage impact. Helmets should always be disposed of after a single impact.
- **Straps, adjuster and chin buckle:** The bicycle helmet straps, adjuster and chin buckle keep the helmet from moving during a crash and exposing the head to impact. If the straps and adjuster are not positioned properly, the bicycle helmet will not stay in the correct position on the head.
- **Pads and universal fit mechanism:** The pads and/or universal fit mechanism are used to ensure that the helmet fits on the head snugly.
- **Vents:** The bicycle helmet vents encourage air flow, to help prevent overheating.

Reminder:

Crash and Trash or One and Done.

7. Explain helmet laws.

Use the information below supplemented with information about the existence/non-existence of bicycle helmet laws specific to the location in which the lesson will be taught. Adjust what is shared as needed for the age/developmental level of the students.

- **State Law:** Bicycle helmet laws vary among states and cities. A state may have a statewide helmet law for certain ages; or cities may have local ordinances with stricter laws. Know your law. For the most updated list of laws, see: <http://www.helmets.org/mandator.htm>
- **Local Law:** Discuss with students if there is/is not a law/regulation/ordinance that requires people of a certain age to wear a bicycle helmet. Note: Local laws can be enacted in the absence of a state law or can be stricter than the state law. Schools can also require students bicycling to school to wear helmets. Discuss with students, in the absence of helmet laws for adults, why adults should also wear a helmet every ride.

For specifics to your state laws, use a search engine for bicycle helmet laws plus your state.

Helmet Law Limitations

Bicycles are associated with more injuries and deaths than any other consumer product other than the automobile. This suggests the important role that safety plays when riding a bicycle. You can play a pivotal role in reducing injuries and deaths associated with bicycle crashes, by reinforcing the use of a bicycle helmet by everyone, every ride. Bicycle helmet laws predominantly address children under 16 years of age. States and localities often enact child-specific laws because they tend to pass easier and adults are more likely to support laws designed to protect children. Unfortunately, this often gives the false impression that only young children are at risk for a bicycle-related injury. This continues to be reinforced as helmet usage tends to decrease with age. Everyone regardless of age and skill level should always wear a bicycle helmet on every ride. You may wish to initiate a be a “Roll” Model campaign to encourage youth to engage their peers and their parents/adults to be “roll” models when bicycling and driving around bicyclists.

For more information on this campaign see NHTSA’s site:
www.nhtsa.gov/Driving+Safety/Bicycles/Be+a+Roll+Model.



Assessment

Divide students into groups of two to three. Instruct students to work in groups of two or three to complete the *Bicycle Helmet Function* worksheet.

Safety

None

Differentiating Instruction

Adapted

- Discussion should be sensitive to students who may have a brain injury.

Beginner

- The visual demonstration may help younger or visual learners and beginner bicyclists better appreciate the need to properly wear a bicycle helmet.

Intermediate and Advanced

- Incorporate information on how bicycle safety standards are tested.

Best Practices

1. Teach this activity during health to provide more time for on-the-bike instruction in the physical education classroom/gym.
2. Discuss the importance of always removing helmets prior to play on playground equipment to prevent serious injury.
3. For additional information, see:
 - **Consumer Product Safety Commission warning**
www.cpsc.gov/CPSCPUB/PREREL/PRHTML99/99065.html
 - **Which Helmet for Which Activity**
www.cpsc.gov/PageFiles/117293/349.pdf
 - **CPSC Safety Alert about Bicycle Helmets and Playgrounds**
www.cpsc.gov/en/Newsroom/News-Releases/1999/After-Recent-Death-CPSC-Warns-Against-Wearing-Bike-Helmets-on-Playgrounds



SKILL-BASED ACTIVITY

Bicycle Helmet Fit

- Timeframe** **Beginner:** 20 minutes
Intermediate: 15 minutes
Advanced: 15 minutes
- Objective** At the conclusion of the activity, the student will be able to:
1. Demonstrate exceptional or reliable bicycle helmet fit as measured by the helmet fit rubric. (Psychomotor)
- National Standards** Standard 2
Standard 4
- Equipment** • Helmets
• Head barriers
• Pencils
• *Bicycle Helmet Fit* worksheet
- Teacher Overview** This activity teaches students how to properly fit a bicycle helmet. This is a critical activity to help prevent brain injuries anytime students will be riding bicycles including during class time.
- Preparation** 1. Send home information about the bicycle unit of instruction several days in advance of the beginning of the unit to encourage students to arrive with bicycle helmet “friendly” hairstyles.
2. If helmets have not yet been ordered, request that they be color-coded for each size. Example: Red helmets are small, silver helmets are medium and blue helmets are large. If helmets are already present and are not color-coded, organize the helmets by numbering them from smallest to largest. Record the range of each size. Example: Small helmets are numbered 1-15; medium helmets are numbered 16-28.
 3. Provide head barriers if using a classroom set of helmets that are shared among students. Proper head barriers could be bandannas, bouffant caps, painter’s caps, book socks, etc. Do not use plastic head barriers. Plastic materials do not allow for air circulation, which can cause overheating.
 4. Determine the adjustment mechanism of the helmets. If only using helmet pads to adjust the helmet fit, ensure there are ample pads of various sizes for students to use. If helmets have a universal fit mechanism, become familiar with how to adjust the mechanism.
Make appropriate number of copies of *Bicycle Helmet Fit* worksheet.

Directions

1. Introduce this activity using the following prompt:

Today, we will be learning how to properly fit a bicycle helmet. This is one of the most important skills you will learn. In order for a helmet to protect the head, it has to be properly fitted. A helmet won't do any good in a crash if the straps are loose or the helmet is sitting too far back on your head. A bicycle helmet is easy to fit when you know the steps to take. You should always check the fit of your helmet before each bicycle ride.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: What is the correct way to wear a helmet?

A: Any of the following:

- Level on the head, approximately 2 finger widths above the eyebrow
- Straps snug and in a "V" under each ear
- The chin strap snug allowing only about 2 fingers between the chin and the chin strap
- The helmet should not easily move around on the head
- Other responses may be accepted

Q: What are some different, unsafe ways you have seen people wear helmets?

A: All responses are acceptable

Q: Why doesn't a helmet protect the head when it's worn incorrectly?

A: Any of the following:

- Crash forces may be directed to the brain as opposed to the helmet
- Helmet could fall off
- Other responses may be accepted

3. Identify the following parts of the bicycle helmet for students: front of helmet, back of helmet, shell, pads, foam, universal fit mechanism, straps, adjuster, chin buckle and air vents.

4. Discuss with students that there is a right way and a wrong way to wear a helmet. If the helmet is worn incorrectly, it cannot effectively protect the brain from injury. The most common mistakes made are:
 - Not wearing a helmet at all
 - Helmet too far off the forehead
 - Helmet straps not buckled
 - Helmet not fitted properly (example: straps too loose, straps twisted)

Common Mistakes With Helmet Use

- Not wearing a helmet at all
- Helmet too far off the forehead
- Helmet straps not buckled
- Helmet not fitted properly (example: straps too loose, straps twisted)

5. Use the following steps to properly fit a bicycle helmet. Go over each step with students demonstrating what will be required of students before they complete the activity themselves. Verifying that the helmet is fitted properly according to these steps will be referred to as the Bicycle Helmet Check from this point forward. This should be performed at the beginning of any lesson that involves on-the-bike activity.

- Choose a helmet that fits snugly on the head. If the helmet is too big or too small, try another helmet. Newer helmets have a universal-fit mechanism in the back of the helmet, which can be used to make adjustments to fit.
- Sit helmet level on your head approximately two finger widths above the eyebrow.
- Slide each adjuster so the straps form a “V” under each ear. The adjuster should be positioned under and slightly in front of the ear lobe.
- Adjust the chin strap so that approximately two fingers fit between the chin and strap when buckled.
- Explain the 2-2-2 rule to students to ensure safety:
 - 2 fingers width between eyebrow and helmet
 - 2 straps make the “V” under and slightly in front of each ear lobe
 - 2 fingers between the chin and strap



- Helmets should not “rock-n-roll.”
 - If the helmet rocks back more than two fingers above the eyebrows, unbuckle, shorten the front strap, buckle and test again
 - If the helmet rocks forward over eyes, unbuckle, shorten the back strap, buckle and test again.

6. Pair students with partners or put into small groups to complete the helmet fit activity using the *Bicycle Helmet Fit* worksheet.

7. One student should complete the activity while the other completes the *Bicycle Helmet Fit* worksheet.

8. The peer assessor should ask each question on the *Bicycle Helmet Fit* worksheet and observe the student completing the activity and fill in the worksheet.

- Insert a **YES** on the worksheet if the activity is completed correctly.
- Insert a **NO** on the worksheet if the activity is completed incorrectly.
- If the activity is completed incorrectly, the peer assessor should identify what was incorrect and provide feedback to his peer about how to correctly perform the activity. The student should repeat the activity until it is completed correctly. If having problems, students should seek guidance from the teacher.

9. Encourage peers to assist each other in ensuring the helmet is the correct size and fitted properly.

See: Bicycle
Helmet Fit
Worksheet.
Page 45.



Refer to optional take-home handouts.

10. Prepare and provide NHTSA handout(s) for take home (optional). Make copies from the parent section or print directly from the following links:
www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8010-wear_a_helmet.pdf
www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8019_Fitting-A-Helmet.pdf

Assessment

1. Assess helmet fit of each student using the following rubric:

PERFORMANCE RUBRIC: HELMET FIT

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to fit helmet correctly on his own, demonstrating the following characteristics of helmet fit (all must be correct):</p> <p>Is snug on head (no rock-n-roll side to side);</p> <p>Sits level on head;</p> <p>Straps form a V under ears;</p> <p>Strap is no more than two finger widths from chin;</p> <p>Does not rock-n-roll on head (forward or backward).</p>	<p>Student can fit helmet correctly, possibly with a little help from a teacher/aide, demonstrating the following characteristics of helmet fit (all must be correct):</p> <p>Is snug on head (no rock-n-roll side to side);</p> <p>Sits level on head;</p> <p>Straps form a V under ears;</p> <p>Strap is no more than two finger widths from chin;</p> <p>Does not rock-n-roll on head (forward or backward).</p>	<p>Student has difficulty fitting helmet correctly, requiring help from teacher/aide, and more than one of the following are not completed correctly:</p> <p>Is snug on head (no rock-n-roll side to side);</p> <p>Sits level on head;</p> <p>Straps form a V under;</p> <p>Strap is no more than two finger widths from chin;</p> <p>Does not rock-n-roll on head (forward or backward).</p>	<p>Student has difficulty fitting helmet correctly, needing a significant amount of help in the process.</p> <p>The student cannot fit a helmet on his/her own.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety

None

Differentiating Instruction

Adapted

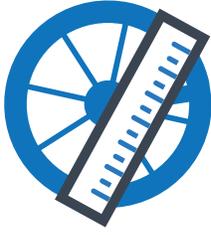
- Depending on the student's skill level, a teacher or aide may have to complete this activity for the student.
- At no time should a student be allowed to ride without a helmet. This may mean additional time should be allotted to fit students who may have additional challenges.

Best Practices

1. The teacher should perform a quick visual inspection of proper helmet fit at the beginning of every class when on-the-bike activities are involved.
2. Use peers/partners to practice, inspect and correct helmet fit for each other. In addition to this being a way to reinforce proper fit, it will also make the most efficient use of class time. This should not replace teacher assessment.
3. Assign students a numbered helmet or helmet color, once proper fit is determined. This will be the helmet number or color of helmet that the student will use in every class. Log this number or color on the student roll.
4. Teach bicycle helmet instruction in the health classroom, if possible, to allow more time for on-the-bike instruction in the physical education classroom/gym.
5. Purchase and use bicycle helmets with the universal fit mechanisms, as opposed to helmets with only straps, if possible. They are easier for students to adjust and less likely to loosen, therefore saving class time and ensuring the helmet stays properly fit.
6. If students are sharing helmets, use head barriers to prevent head lice.
7. Ensure safety precautions if students opt to use their own helmets:
 - Check for the presence of CPSC label
 - Visually assess for the presence of obvious damage to the helmet
 - Request students to verify that helmets have not been associated with a previous crash. Teachers should have extra helmets on hand for those students who are unsure of their helmet's crash history

Diagram: Correct Helmet Fit





SKILL-BASED ACTIVITY

Bicycle Fit

- Timeframe** **Beginner:** 20 minutes
Intermediate: 15 minutes
Advanced: 15 minutes
- Objectives** At the conclusion of the activity, the student will be able to:
1. Demonstrate exceptional or reliable bicycle fit, as measured by the bicycle fit rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 2
Standard 4
- Equipment** • Bicycles
• Allen wrench, if needed for seat height adjustment
• Pencils
• *Bicycle Fit* worksheet
- Teacher Overview** This activity teaches students how to properly fit a bicycle to the rider. This is an important activity to help ensure the safety and comfort of the bicyclist.
- Preparation** 1. Label bicycles with numbers from the smallest to the largest bicycle.
2. Determine the mechanism on the bicycle to adjust the seat height. Bicycles that have seat quick releases will enable the seat height to be easily adjusted without the use of any tools. If the bicycle does not have a seat quick release, an Allen wrench will be needed to make these adjustments and will require more classroom time.
 3. Make appropriate number of copies of *Bicycle Fit* worksheet.
- Directions** 1. Introduce this activity using the following prompt:
- Today, we will be learning how a properly fit a bicycle to a rider. There are some easy steps to take to make sure a bicycle fits. These should be done every time you are getting on a new bicycle or a bicycle that has been adjusted for another rider. Making sure a bicycle fits the rider will be safer for the rider as well as making it more comfortable to ride.*
2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: Have you ever ridden a bike that was too big?

A: All responses are acceptable

Q: What did that feel like?

A: All responses are acceptable

Q: Did your legs hurt?

A: All responses are acceptable

Q: What advantages would there be to a properly fitted bicycle?

A: Any of the following:

- Safety
- Comfort
- Other responses may be accepted

3. Demonstrate what is requested of students before allowing students to complete the activity.

4. Instruct students to straddle the bicycle with feet flat on the ground and to squat over the top tube.

- Each student should be able to squat about three inches for mountain bikes - from a standing position with feet flat on the ground to sitting on the top tube. If there is too much or not enough clearance, then assist students in finding a bike that is a better fit.
- The fit may vary depending on the type of bike.

5. Explain the relationship of seat height to comfort and safety.

- Seat heights that are too high or too low will result in uncomfortable and inefficient riding.
- Riders will often complain that their legs are tired or “burning” if seat height is too low.
- If a seat height is too high, the bicycle may be difficult to control.

6. Divide students in groups of three (3) to complete the *Bicycle Fit worksheet for each student*. One person is the cyclist, one assesses and one holds the bike steady.

- Instruct peers to assess each other by asking the questions on the peer assessment, checking all aspects of bicycle fit and placing a checkmark in the most appropriate box on the worksheet.

The down stroke leg should be almost fully extended, with a slight bend at the knee.

- Instruct the cyclist to sit on the saddle and place the ball of one foot on the pedal in the down stroke or 6 o'clock position.
- If the down stroke leg is too straight or too bent, the seat height can be adjusted up or down to achieve the correct position.

Proper Positioning. If the down stroke leg is too straight or too bent, adjust the seat height up or down to achieve the correct position.



- Open the quick release lever on the seat tube. The correct way to use the seat quick release is to swing the lever from the fully closed position to the fully open position. Most levers will have the word "open" and "closed" on each side.
 - To loosen or tighten the quick release, use the knob to adjust the clamping force.
 - Not securing the quick release tightly enough can result in the seat height moving during riding.
 - Securing the quick release too tightly can damage the seat tube.
- Slide the seat post up or down. Ensure the seat post is inserted beyond the minimum insertion (or maximum extension) point of the post.
- To close the quick release, swing the lever from full open to full closed; you should just start to feel some resistance when the lever is perpendicular to the seat post. If you do not feel resistance at this point, tighten the clamping force. If you feel resistance before this point, loosen the clamping force. Not securing the quick release tight enough can result in the seat height moving during riding. Securing the quick release too tightly can damage the seat tube.
- Ensure the lever is tight and the seat cannot be moved before sitting on it.

- Rotate positions so each student takes a turn fitting, assessing and holding.

Assessment

1. Assess bicycle fit of each student using the following rubric:

PERFORMANCE RUBRIC: BIKE FIT

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to fit a bike correctly on her own, demonstrating the following characteristics of the bike fit (all must be correct):</p> <p>Student can straddle the bike with 3" of clearance between the rider and the top tube;</p> <p>Student can adjust the saddle height so that her knee has a slight bend when the foot/pedal is at the 6 o'clock position;</p> <p>Student's knees are not bent so much that pedaling is inefficient;</p> <p>Student does not rock side to side when pedaling;</p> <p>Seat post has at least 3" (7.6cm) in the seat tube or is not higher than the mark on the post;</p> <p>Nose of saddle is lined up with top tube;</p> <p>Saddle is level or the nose is slightly higher;</p> <p>Quick release on seat post is closed and tight.</p>	<p>Student is able to fit a bike correctly, possibly with a little help from a teacher/aide, demonstrating the following characteristics of the bike fit (all are correct):</p> <p>Student can straddle the bike with 3" of clearance;</p> <p>Student can adjust the saddle height such that her knee has a slight bend when the foot/pedal is at the 6 o'clock position;</p> <p>Student's knees are not bent too much so that pedaling is inefficient;</p> <p>Student does not rock side to side when pedaling;</p> <p>Seat post has at least 3" (7.6cm) in the seat tube or is not higher than the mark on the post;</p> <p>Nose of saddle is lined up with top tube.Saddle is level or the nose is slightly higher;</p> <p>Quick release on seat post is closed and tight.</p>	<p>Student has difficulty fitting bike correctly, requiring help from a teacher/aide, and the majority of the following is not completed correctly:</p> <p>Student can straddle the bike with 3" of clearance;</p> <p>Student can adjust the saddle height so that her knee has a slight bend when the foot/pedal is at the 6 o'clock position;</p> <p>Student's knees are not bent so much that pedaling is inefficient;</p> <p>Student does not rock side to side when pedaling;</p> <p>Seat post has at least 3" (7.6cm) in the seat tube or is not higher than the mark on the post;</p> <p>Nose of saddle is lined up with top tube;</p> <p>Saddle is level or the nose is slightly higher;</p> <p>Quick release on seat post is closed and tight.</p>	<p>Student has difficulty fitting bike correctly, needing a significant amount of help in the process;</p> <p>The student fails to understand the process of fitting a bike.</p> <p>Assess the performance of social behavior for each student using the following rubric.</p>

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety

1. Ensure all seat posts are inserted beyond the minimum insertion (or maximum extension) point of the post.

Minimum Insertion Line



Differentiating Instruction

Adapted and Beginner

- Set up less skilled students with both feet flat on the ground, while seated on the saddle, until skill level advances.
- Use adult tricycles, bicycles with training wheels, etc. for students that may be uncomfortable.

Intermediate and Advanced

- Discuss the different types of bicycle and fit needed for different types of bicycles (see parent handout)
- Road bikes should have about 1-2 inches of clearance between the rider and the top tube.
- Mountain bikes should have about 3-4 inches of clearance between the rider and the top tube since these bicycles are typically used to ride on bumpy terrain trails the rider will move up and down more.

Best Practices

1. Assign students a numbered bicycle, once proper fit is determined. This will be the bicycle that the student will ride in every class. This number should be logged on the student roll.
2. Use a bicycle that is too small, rather than one that is too big, if there are not enough properly sized bicycles for all students.

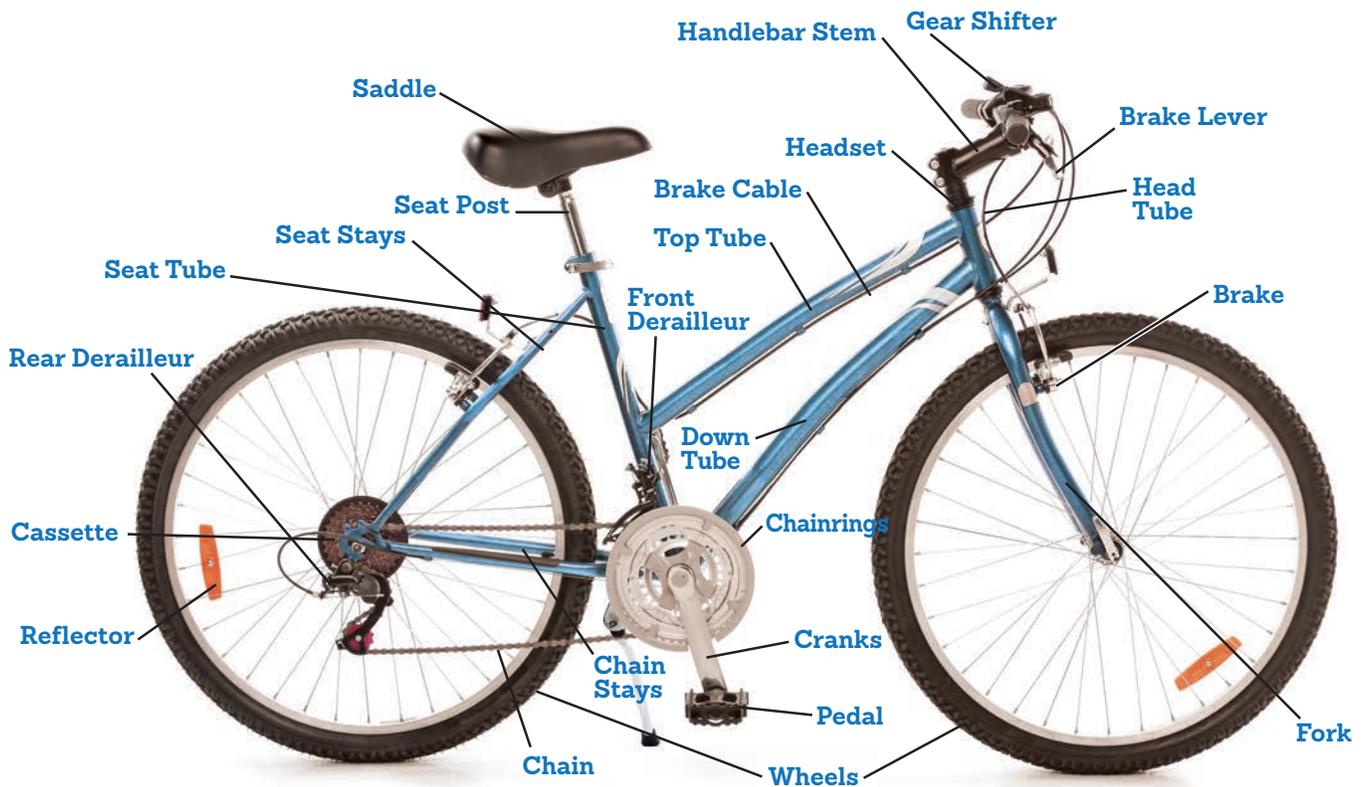


SKILL-BASED ACTIVITY

Bicycle Parts

- Timeframe** **Beginner:** 10-12 minutes
Intermediate: 10 minutes
Advanced: 8-10 minutes
- Objective** At the conclusion of the unit, the student will be able to:
1. Identify the basic parts of the bicycle, as measured by successful completion of the *Bicycle Parts* worksheet. (Cognitive)
- National Standards** Standard 2
Standard 4
- Equipment** • Bicycles
• Bicycle part labels
• Tape
• Pencils
• Scissors
• *Bicycle Parts* worksheet
- Teacher Overview** This activity teaches students the proper names for various parts of the bicycle.
- Preparation** Make appropriate number of copies of *Bicycle Parts* worksheet.
Cut out each bicycle part to be taped onto bicycle, using bicycle parts labels.
- Directions** 1. Introduce this activity using the following prompt:
- Today, we will be learning the proper names for various parts of the bicycle.*
2. Use the following sample questions to prompt students' thinking about the content in this activity.
- Q: Why is it important to know the right names for the parts on a bicycle?**
A: Any of the following:
- Be more knowledgeable about bicycles
 - Can get the correct part fixed if it is broken
 - Other responses may be accepted
- Q: How many parts can you name?**
A: All responses are acceptable
- Identify the parts of the bicycle for the students by taping the bicycle parts to a bicycle in front of the class.
3. Divide class into small groups of 3-4 students. Students should work together to complete the worksheet.

Bike Parts Diagram



Assessment Use worksheet based on student level: beginner, intermediate or advanced.

Safety None

Differentiating Instruction

Beginner

- Instruct students to identify the frame, saddle, wheels, pedal, handlebars, chain and brakes.

Intermediate

- Instruct students to identify the frame, saddle, wheels, pedal, handlebars, chain and brakes.
- Instruct students to identify the top tube, seat tube, down tube, head tube, seat stays, chain stays, cranks, chainrings, cassette, rear derailleur, front derailleur, seat post, handlebar stem, headset, brake levers, brake cables, shifters and fork.

Advanced

- Identify bicycle parts and which parts are grouped as the frame and the drive train.
- Complete activity as a timed event.

Best Practices

1. Use peers/partners to practice, inspect and correct each other.
2. Provide options for doing this activity, such as provide student with a completed picture and ask them to tape names of parts to their bike. They could begin doing what they know and use the picture to complete the ones they do not know.

BIKE PARTS WORKSHEET



Student _____ Date _____

Directions: With your partner/group, please correctly label the bike parts by matching the letters in the picture with the parts listed below.



A. Frame

B. Wheels

C. Handlebars

D. Brake

E. Saddle

F. Pedal

G. Chain

BIKE PARTS WORKSHEET

ANSWER KEY



A. Frame

B. Wheels

C. Handlebars

D. Brake

E. Saddle

F. Pedal

G. Chain

BIKE PARTS RACE



NOTE: This competitive game will give the students some fun exercise. It can be used instead of or in addition to the bike parts worksheet

- Objective**
- To teach students the names and locations of various bicycle parts.
 - To offer students a bike-related indoor physical activity.
- Equipment**
- One multi-gear bicycle per team.
 - One full set of bicycle tags per team.
- Teacher Overview**
- The object of this game is for each team to get rid of its bicycle tags first. Divide students into teams with equal numbers of students. The hang tags should be placed together on the floor. The children should come up one by one to select and place their tags.
- Preparation**
- Make appropriate number of copies of the *Bike Parts Race Labels* sheet. Cut out each bicycle part label to be attached to bicycle.
- Directions**
1. Position bicycles at one end of the space, and the teams on the other end. .
 2. When the game starts (go, whistle, etc.), the first player from each team runs across the room to his/her team's bike and hangs the tag on the appropriate part. When complete, s/he runs back and must "tag" the next player on the team, who performs the same task, then tags the next player, etc.
 3. Players who have hung their tags should continue performing the exercise until all the tags from their team have been hung correctly.

BIKE PARTS RACE LABELS



Derailleur	Bell	Fork
Seat	Seatpost	Top Tube
Brake	Reflector	Cable
Chain	Shifter	Tire
Handlebar	Stem	Quick Release Lever
Pedal	Frame	Crank
Rim	Spoke	Hub



SKILL-BASED ACTIVITY

ABC Quick Check

Timeframe	Beginner: 20 minutes Intermediate: 15 minutes Advanced: 10 minutes
Objectives	At the conclusion of the activity, the student will be able to: <ol style="list-style-type: none">1. Demonstrate exceptional or reliable performance of the ABC Quick Check, as measured by the ABC Quick Check rubric. (Psychomotor)2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
National Standards	Standard 1 Standard 2 Standard 4
Equipment	<ul style="list-style-type: none">• Bicycles• Helmets• Head barriers• Tire pump with air pressure gauge• Cones• Red floor tape• Pencils• <i>ABC Quick Check</i> worksheet
Teacher Overview	This activity teaches students an important safety check to ensure that the bicycle is in good working condition before riding. This is the first activity in this module that will involve students riding bicycles.
Preparation	<ol style="list-style-type: none">1. Ensure the tire pumps are compatible with the types of valve stems on the tire tubes.2. Identify the type of brakes on the bicycle to be able to instruct students how to check for proper function.3. Designate a riding course.4. If bicycles have both front and rear brakes, wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.

Directions



5. Check all quick releases to make sure they are correctly tightened and in the correct direction. Use the correct technique when opening the wheel quick release by swinging the lever from the closed position to the open position. Most levers will have the word “open” and “closed” on each side.
 - To loosen or tighten the quick release, use the knob to adjust the clamping force. To close the quick release, swing the lever from full open to full closed; you should just start to feel some resistance when the lever is parallel to the ground.
 - If you do not feel resistance at this point, tighten the clamping force. If you feel resistance before this point, loosen the clamping force. Not securing the quick release can result in the wheel falling off the bicycle.
6. Make appropriate number of copies of *ABC Quick Check* worksheet

1. Introduce this activity using the following prompt:

Before going out on a bicycle ride, it's important to check your bicycle to make sure it is safe. There is an easy way to remember this. It's called the ABC Quick Check. A stands for Air; B stands for Brakes; C stands for Chain and Crank; Quick means check all Quick Releases; and Check means for check everything with a slow, short ride.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: How do you know your bicycle is safe to ride?

A: Any of the following:

- All the parts are working properly
- By testing it out
- Other responses may be accepted

Q: What parts do you think are important to check?

A: Any of the following:

- Tires
- Brakes
- Chain
- Quick Releases
- Other responses may be accepted

Q: What can happen if you ride a bicycle that is not safe or that has a problem?

A: Any of the following:

- The rider could get hurt
- More likely to have a bicycle crash
- Won't enjoy the bicycle ride
- Other responses may be accepted

3. Arrange students in a “U” shape to facilitate all students being able to watch your instruction.

4. Demonstrate the ABC Quick Check for the whole group, going through each step and describing the use of the mnemonic as an easy way to remind them of the steps.

4A. Discuss the letter A stands for Air

- Explain that maintaining proper air pressure in the tires makes riding more comfortable and increases the life of the tires.
- Check the front and rear tires for air pressure by squeezing the tires. Tires should be hard, not soft. **(Cue)** If tires need air, students should pump up tires.
- Demonstrate how to use a tire pump.

4B. Discuss the letter B stands for Brakes

- There are three different types of braking systems: coaster brakes, rim brakes and disc brakes.
- Discuss use of brakes based on the type of brake. If a bicycle has coaster brakes, the rider will stop the bicycle by pedaling backward. If the bicycle has rim or disc brakes, the rider will stop the bicycle by squeezing the brake levers on the handlebar.
- To use the brake lever, always use the index and middle fingers to the apply brakes. The right brake lever stops the rear wheel and the left brake lever stops the front wheel.
- Care should be taken when using the front brake. If the front brake is applied too hard or too quickly, the rider could be propelled over the handlebars.
- Until proper braking skill is taught, only the rear brake should be used. Cover the left-hand brake with red tape and remind students not to use the that brake. Some bicycles, such as BMX bikes, may only have a rear brake.
- Demonstrate proper brake use for students before they try it themselves:
 - Squeeze brake lever to ensure the distance between the brake lever and handlebar is a minimum of 1 inch (from knuckle to knuckle). **(Cue)**
 - Apply brakes while pushing the bicycle forward and backward to ensure that the bicycle stops.

4C. Discuss the letter C stands for Chain and Crank

- Explain to students: It is very rare to have a crank that is loose. If this occurs, however, do not use bicycle until it has been repaired by a professional.
- Demonstrate the following to students before they try it themselves.
 - Check the cranks by grasping the crank and trying to move it horizontally toward and away from the frame of the bicycle, to ensure crank is securely attached to the frame.
 - Explain to students that the chain should be completely on a gear to help prevent the chain from falling off.
 - Check the chain by placing a hand under the saddle to lift rear wheel off the ground; using the other hand, grasp the pedal and spin, moving the wheel to ensure the chain is properly set on the gears.



Tires should be hard, not soft.

Cue: Hard as a rock.



Ensure the distance between the brake lever and handlebar is a minimum of 1 inch.

Cue: 1 inch = from knuckle to knuckle.

Allow enough space for all students to be riding at the same time, three-bicycles-length between each rider.

Cue: Three-bicycles-lengths between each rider.

- 4D.** Discuss the words **Quick Check: Quick-check quick releases and Check - check everything with a slow, short ride.** Use the bulleted steps if bicycles have quick release levers or skip to step #5.
- Point to lever behind seat and explain to close the quick release lever so it does not catch on clothing or potentially open.
 - Instruct students to inspect the seat quick release.
 - Explain the front wheel quick release should be closed and pointing in an upward direction, parallel to the fork, so it does not catch on anything on the ground and potentially open.
 - Instruct students to inspect the front wheel quick release.
 - Explain the rear wheel quick release should be closed and pointing toward the front tire, in between the chain and seat stays, so it does not catch on anything on the ground and potentially open.
 - Instruct students to inspect the rear wheel quick release.
- 5.** Explain they will be completing a short, slow ride on the designated course to check for safety and comfort. This is an opportunity for students to evaluate the comfort and efficiency of the bicycle. They need to allow enough space for all students to be riding at the same time. **(Cue)**
- Remind students of the following safety rules while riding:
 - Explain the 2-2-2-2 rule to students to ensure safety and classroom management:
 - 2 wheels on the ground
 - 2 feet on the pedals
 - 2 hands on the handlebars
 - 2 fingers on the brake levers
 - If bicycles have both a front and rear brake, explain to students not to use the brake on the red taped, left handlebar (front brake) during the ride.
- 6.** Explain the ABC Quick Check should be performed before every ride.
- 7.** Divide students into small groups of two to three.
- 8.** Have each group of students complete the *ABC Quick Check* worksheet for each member of the group.
- 9.** Distribute the NHTSA *ABC Quick Check* handout at the end of the class.



Handout reinforces the information taught in class. See:
www.nhtsa.gov/DOT/NHTSA/NTI/SRTS/7505-06-ABCQuickCheck.pdf

Assessments

1. Assess performance of the ABC Quick Check of each student using the following rubric:

PERFORMANCE RUBRIC: ABC QUICK CHECK

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to conduct the ABC Quick Check correctly on his own, demonstrating the following characteristics (all must be correct):</p> <ul style="list-style-type: none"> Checks both tires for air; Checks both front and rear brakes (knuckle to knuckle) by spinning each tire and squeezing each brake; Checks the front chainring (gears) by grabbing the crank set and jiggling it; Checks the chain by turning the pedals with the rear wheel off the ground; Checks all quick releases (seat post, front, and rear wheel) for security; Takes a short ride for overall check. 	<p>Student is able to conduct the ABC Quick Check correctly, possibly with help from a peer (peer assessment process may serve to guide specific details of process), demonstrating the following characteristics (all must be correct):</p> <ul style="list-style-type: none"> Checks both tires for air; Checks both front and rear brakes (knuckle to knuckle) by spinning each tire and squeezing each brake; Checks the front chainring (gears) by grabbing the crank set and jiggling it; Checks the chain by turning the pedals with the rear wheel off the ground; Checks all quick releases (seat post, front, and rear wheel) for security; Takes a short ride for overall check. 	<p>Student has difficulty conducting the ABC Quick Check correctly, requiring help from a teacher/aide, and more several of the following are not completed correctly:</p> <ul style="list-style-type: none"> Checks both tires for air; Checks both front and rear brakes (knuckle to knuckle) by spinning each tire and squeezing each brake; Checks the front chainring (gears) by grabbing the crank set and jiggling it; Checks the chain by turning the pedals with the rear wheel off the ground; Checks all quick releases (seat post, front, and rear wheel) for security; Takes a short ride for overall check. 	<p>Student has difficulty conducting the ABC Quick Check correctly, needing a significant amount of help in the process. The student fails to understand the process of the ABC Quick Check.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety

1. Remind students they should only use the rear brake to stop the bicycle, until their skill level advances to be able to safely use the front brake.
2. Students should only be visually inspecting the quick releases. Advanced students would only practice properly opening/closing and tightening/loosening the wheel quick release after proper instruction and constant supervision by the teacher.

Differentiating Instruction

Adapted

- Depending on skill level, teacher or aide may have to perform this activity with the student.

Beginner

- Students should only use the rear brake to stop the bicycle.
- Instruct students not to use the brake lever on the red side of the handlebar.
- This should be done until their skill level advances to be able to safely use the front brake. Student should only visually inspect the quick releases.
- Perform this activity as a group.

Intermediate

- Locate the Pounds per Square Inch (PSI) range on the tire.
- Identify the type of brakes on the bicycle.
- Locate the “Open” and “Closed” labels on the seat quick release; practice tightening and loosening the quick releases, as they are opened and closed.
- Perform as a group and then individually.

Advanced

- Determine the current PSI of each tire by using an air pressure gauge on the tire pump and add or remove air as needed.
- Discuss the two types of tube valves: Presta, Schrader.
- Locate the “Open” and “Closed” labels on both wheel quick release; practice tightening and loosening the quick releases, as they are opened and closed.
- After initial group performance of skill, students can perform this skill individually, in small groups or with partners at the beginning of each class.



Schrader

Presta

Best Practices



1. Complete the Helmet Check and ABC Quick Check at the beginning of every class in which the students will be riding.
2. Use peers/partners to practice, inspect and correct each other to make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Attach the tube valve, then raise and lower the tire pump handle. The needle on the air pressure gauge will stop at the current air pressure level. Based on the PSI range on the tire, one can determine if more or less air is needed.
4. Refer to the picture above to see the difference between a Presta and a Schrader valve.
5. Refer to the picture below to see the difference between rim brakes and disc brakes.



Rim Brakes



Disc Brakes

6. Check for the following if the brake lever touches the handlebars:
 - Check to see that the brake quick release is not open.
 - The handlebars of BMX bikes can turn to face the wrong direction and affect the braking capability.
7. Make minor adjustments to the brake cables.
8. If brake lever still touches the handlebar, the brakes will not work and the bicycle should not be used.
9. Assess the riding skills, bike fit and seat height during this activity.



CLOSURE ACTIVITY

Walk & Share

Timeframe

Beginner: 3-5 minutes
Intermediate: 3-5 minutes
Advanced: 3-5 minutes

Objective

At the conclusion of the activity, the student will be able to:

1. Describe key concepts from Unit 1, bicycle fit, helmet fit and ABC Quick Check, as measured by participation in peer discussion about bicycle safety. (Cognitive)

National Standards Standard 2
Standard 4

Equipment

- *Bicycle Safety Word Search* worksheet (optional)
- *Bicycle Safety Crossword Puzzle* worksheet (optional)

Teacher Overview

This activity prompts students to think about what they have learned during the first unit by asking questions about correct bicycling behaviors. By working in groups to respond to the questions, the brainstorming will initiate peer discussion about safe bicycling behaviors.

Preparation

1. Make appropriate number of copies of *Bicycle Safety Word Search* worksheet and/or *Bicycle Safety Crossword Puzzle* worksheet (optional)

Directions

1. Introduce this activity using the following prompt:

We have now completed Unit 1 – “Getting Ready to Ride.” All of the skills learned in this unit will help you be safe when you are out riding. Helmet fit, bike fit and ABC Quick Check should be completed every time you get on a bike, whether at school or home.

2. Divide students into pairs.
3. Ask partners to walk the perimeter of the gym. Explain that they will be given questions that they need to discuss with their partner when walking.
4. Instruct students to stop when the whistle blows and be prepared to share something that they discussed with their partner.
5. Use the following sample questions to prompt students' thinking about the content presented in this unit.

Q: Why should you wear a helmet every time you ride your bicycle?

A: To protect your brain from injury

Q: What are the three most important things to do when fitting your helmet?

- A:**
- Level on your head
 - Snug straps so it doesn't rock back and forth
 - Snug chin strap

Q: Why is it important to have a bicycle that fits properly?

- A:** Any of the following:
- A bicycle that is too big is more likely to result in a crash.
 - A properly fitted bicycle will result in a safer more comfortable ride

Q: How can you test to see how well a bike fits you?

A: Complete the bicycle fit steps

Q: What does ABC Quick Check stand for?

A: Air, Brakes, Chain/Crank, Quick Releases and a check everything out with a slow, short ride for safety and comfort

Q: Why is it important to do pre-ride safety checks?

- A:** Any of the following:
- To make sure everything is working properly on the bicycle; this could prevent a crash.
 - There may be a problem that you otherwise would not know about.

Q: What was the most important new thing you learned in this module?

A: All responses are acceptable

6. If desired, use the *Bicycle Safety Word Search* worksheet provided or create a similar one, using a free online word search tool. You may want to simplify the word search for younger students, and possibly not have students answer the questions provided.
7. If desired, use *Bicycle Safety Crossword Puzzle* worksheet provided as a summative form of assessing student understanding. Modify the crossword puzzle by simplifying it as appropriate for younger students. Simplify the puzzle as needed for younger students. Older beginner students, could complete a more difficult crossword puzzle or word search if the information was covered in class and/or students were provided some reading material.

Assessments

Check for understanding by asking students to share responses with whole group.

Safety

None

Differentiating Instruction

All levels

- Vary the type of activity students are performing including such things as galloping, sideways sliding, easy jogging, etc.

Intermediate and Advanced

- Set up lanes that students need to travel in. Include stop signs and intersections.



UNIT 2

Bicycle Handling Basics

OBJECTIVES

At the conclusion of this unit the student will be able to:

1. Describe bicycle handling basics as measured by completion of the *Bicycle Handling Basics worksheet* (Cognitive)
2. Demonstrate exceptional or reliable bicycle helmet fit as measured by the helmet fit rubric. (Psychomotor)
3. Demonstrate exceptional or reliable performance of the ABC Quick Check, as measured by the ABC Quick Check rubric. (Psychomotor)
4. Demonstrate exceptional or reliable performance of the balance skill as measured by the balance rubric. (Psychomotor)
5. Demonstrate exceptional or reliable performance of controlled braking as measured by the controlled braking rubric. (Psychomotor)
6. Demonstrate exceptional or reliable performance of straight line riding as measured by the straight-line rubric. (Psychomotor)
7. Demonstrate exceptional or reliable performance of the Power Start skill as measured by the Power Start rubric. (Psychomotor)
8. Demonstrate exceptional or reliable performance of the Ready Position skill as measured by the Ready Position rubric. (Psychomotor)
9. Demonstrate exceptional or reliable performance of scanning as measured by the scanning rubric. (Psychomotor)
10. Demonstrate exceptional or reliable performance of signaling as measured by the signaling rubric. (Psychomotor)
11. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
12. Describe key concepts from Unit 2, Power Start, Ready Position, Scanning and Signaling, as measured by completion of the *Bicycle Handling Skills worksheet*. (Cognitive)

13. List and describe three key concepts from Unit 2 that illustrate a clear understanding of the need to have safe bicycle handling skills as measured by providing responses to questions in journals. (Cognitive)
14. Describe feelings about the ability to ride safely and their level of enjoyment of bicycling, as measured by providing responses to questions in journals. (Affective)

NATIONAL STANDARDS FOR K-12 PHYSICAL EDUCATION

Standard 1

The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

Standard 2

The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.

Standard 3

The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4

The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5

The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

KEY VOCABULARY/TERMS

Bicycle Driver: In all states, bicycles are considered vehicles or bicyclists are the driver of a vehicle. Bicyclists 'drive-- their vehicles much like drivers of motorized vehicles. Both bicyclists and motorists have the same rights and the same responsibilities to follow the same rules-of-the-road when in traffic. To emphasize this concept, some teachers of bicycle safety will refer to this as "acting like a bicycle driver" or "driving your bicycle."

Braking: The act of stopping the bicycle using one of a variety of methods. Some bicycles use hand brake levers. The right brake lever stops the rear wheel; the left brake lever stops the front wheel. Some bicycles have coaster brakes where the bicyclist pedals backward to engage the brakes on the rear wheel.

Power Start/Power Takeoff: A fast and efficient way to get bicycle moving from a stopped position. The rider straddles the bicycle and places one foot on the ground, the other foot on the pedal between the 12 and 2 o'clock position. The rider should be standing, not sitting on the saddle. The rider pushes down on the pedal moving it to the 6 o'clock position and pushes off the ground with the other foot at the same time. The rider should be standing above the saddle, coast and count to three before placing the other foot onto the other pedal and sitting on the saddle.

Ready Position: A particular way to position the body on a bicycle enabling the rider to have control over the bicycle and to be prepared for most maneuvers. The rider is standing over the saddle with most of his/her weight over the rear tire; pedals are parallel to the ground; and the index and middle fingers are lightly resting on the brake lever.

Scanning: The act of looking over one's shoulder to observe if it is clear to change direction or to be aware of one's surroundings.

Signaling: A form of communication using the bicyclist's hands to indicate changes in direction and speed.

Track Stand: A rider attempts to balance on the bicycle with both feet on the pedals in a stationary position. The goal is to keep the wheels from moving forward or backward.

ACTIVITIES

Each unit should include three types of activities: introduction, skill-based with assessments and closure. In some cases, more than one activity option is offered for the introduction and closure; choose the appropriate activities that fit into your allotted class time when developing your lesson plans. If class time is too short to allow for all three types of activities, focus your lesson on the skill-based activities.

Introduction: The following activity can be used to introduce this unit of learning.

- Walk & Share

Skill-Based with Assessments: Each skill-based activity is associated with an assessment to measure student knowledge and application of the identified skill. Depending on the amount of class time available and the skill level of students, more than one of the following skill-based activities may be completed during one class. All of the skill-based activities are considered essential in creating the foundation for safe bicycling. Regardless of skill level and/or if students have learned this material in previous years, all skill-based activities in this unit should be completed before moving to the next unit. This will ensure that students have the safety knowledge and basic skills necessary to practice safe bicycling behaviors.

- Helmet Fit and ABC Quick Check
- Balance
- Controlled Braking
- Straight-Line Riding
- Power Start
- Ready Position
- Scanning
- Signaling

Closure: The following activities can be used to conclude this unit of learning. If desired, these activities can be assigned as homework. Choose the activity which best fits the needs of your students and class.

- Walk & Share
- Journal writing

EQUIPMENT NEEDED

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polypots or chalk to mark riding course
- Pencils
- *Bicycle Handling Basics* worksheet
- *Bicycle Handling Skills* worksheet
- Helmet Fit handout (optional) http://www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8010-wear_a_helmet.pdf
- ABC Quick Check handout (optional) <http://www.nhtsa.gov/DOT/NHTSA/NTI/SRTS/7505-06-ABCQuickCheck.pdf>
- Student Journals
- Jump ropes (optional)

CROSS-CURRICULAR ACTIVITIES

Language Arts

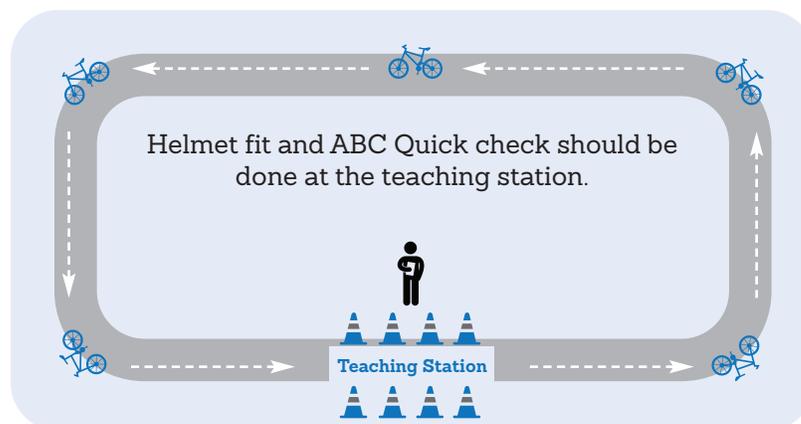
- Journal writing



SKILL-BASED ACTIVITY

Helmet Fit & ABC Quick Check

- Timeframe** **Beginner:** 10-12 minutes
Intermediate: 10 minutes
Advanced: 8-10 minutes
- Objectives** At the conclusion of this activity the student will be able to:
1. Demonstrate exceptional or reliable bicycle helmet fit as measured by the helmet fit rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable performance of the ABC Quick Check, as measured by the ABC Quick Check rubric. (Psychomotor)
 3. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 3
Standard 4
- Equipment**
- Bicycles
 - Helmets
 - Head barriers
 - Cones, domes, polypots or chalk to mark riding course
 - Helmet Fit handout (optional)
www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8010-wear_a_helmet.pdf
 - ABC Quick Check handout (optional)
www.nhtsa.gov/DOT/NHTSA/NTI/SRTS/7505-06-ABCQuickCheck.pdf
- Teacher Overview** Complete this activity each time students will be riding a bicycle. This will ensure that each student has a properly fitted bicycle helmet and a properly functioning bicycle. Eventually, this activity can be completed and checked by peer assessment to reduce the amount of class time required.



Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
3. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.

Directions

1. Introduce this activity using the following prompt:

Today, we will be practicing the two activities that you should always do before riding a bicycle—fitting your bicycle helmet and making sure your bicycle is in good working order. We have already learned how important it is to protect your brain from injury by wearing a bicycle helmet; how to properly fit a bicycle helmet and how to make sure your bicycle is in good working order using the ABC Quick Check. These are two things that we will do at the beginning of every class if we are going to be riding.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: You are asked to fit a helmet for your friend. What guideline do you follow as you help your friend?

A: 2, 2, 2 = helmet level & 2 fingers between eyebrows and helmet; 2 straps make a V around ears; no more than 2 fingers between strap and chin.

Q: You need to explain to your family or friends why they need to wear a helmet. What do you tell them?

A: Any of the following are acceptable:

- Protect your brain from injury
- Other answers may be accepted.

Q: What are some of the biggest errors people make in terms of helmet use?

A: Any of the following:

- Not wearing a helmet.
- Wearing a helmet that is not fitted properly.
- Wearing a helmet that is not buckled, or not buckled tightly enough to provide protection.
- Other answers may be accepted.



The Helmet Fit and ABC Quick Check should be performed before every ride or, in this case, at the beginning of every lesson.



Q: You notice your friend or family member starting to ride their bicycle without doing a safety check. Can someone explain the safety check for a bicycle?

A: A = Air; B = Brakes; C = Chain and cranks; Quick = Quick releases; Check = Go for a short, slow ride.

Q: Why should it be performed before every ride?

A: So you know you're riding a bicycle that is safe. Some bicycle crashes are due to failure of the bicycle itself.

3. Divide students into groups of two or three.

4. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.

5. Instruct students to retrieve bicycles according to number assigned.

6. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly, and to provide prompts if an item was missed. Switch roles.

7. Instruct pairs to proceed to riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.



Assessment 1. Assess helmet fit of each student using the following rubric.

PERFORMANCE RUBRIC: HELMET FIT

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to fit helmet correctly on his own, demonstrating the following characteristics of helmet fit (all must be correct):</p> <p>Is snug on head (no rock-n-roll side to side);</p> <p>Sits level on head;</p> <p>Straps form a V under ears;</p> <p>Strap is no more than 2 finger widths from chin;</p> <p>Does not rock-n-roll on head (forward or backward).</p>	<p>Student can fit helmet correctly, possibly with a little help from a teacher/aide, demonstrating the following characteristics of helmet fit (all must be correct):</p> <p>Is snug on head (no rock-n-roll side to side);</p> <p>Sits level on head;</p> <p>Straps form a V under ears;</p> <p>Strap is no more than 2 finger widths from chin;</p> <p>Does not rock-n-roll on head (forward or backward).</p>	<p>Student has difficulty fitting helmet correctly, requiring help from teacher/aide, and more than one of the following are not completed correctly:</p> <p>Is snug on head (no rock-n-roll side to side);</p> <p>Sits level on head;</p> <p>Straps form a V under ears;</p> <p>Strap is no more than 2 finger widths from chin;</p> <p>Does not rock-n-roll on head (forward or backward).</p>	<p>Student has difficulty fitting helmet correctly, needing a significant amount of help in the process.</p> <p>The student cannot fit a helmet on his/her own.</p>

2. Assess performance of the ABC Quick Check of each student using the following rubric.

PERFORMANCE RUBRIC: ABC QUICK CHECK

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to conduct the ABC Quick Check correctly on his own, demonstrating the following characteristics (all must be correct):</p> <p>Checks both tires for air;</p> <p>Checks both front and rear brakes (knuckle to knuckle) by spinning each tire and squeezing each brake;</p> <p>Checks the front chainring (gears) by grabbing the crank set and jiggling it;</p> <p>Checks the chain by turning the pedals with the rear wheel off the ground;</p> <p>Checks all quick releases (seat post, front, and rear wheel) for security;</p> <p>Takes a short ride for overall check.</p>	<p>Student is able to conduct the ABC Quick Check correctly, possibly with help from a peer (peer assessment process may serve to guide specific details of process), demonstrating the following characteristics (all must be correct):</p> <p>Checks both tires for air;</p> <p>Checks both front and rear brakes (knuckle to knuckle) by spinning each tire and squeezing each brake;</p> <p>Checks the front chainring (gears) by grabbing the crank set and jiggling it;</p> <p>Checks the chain by turning the pedals with the rear wheel off the ground;</p> <p>Checks all quick releases (seat post, front, and rear wheel) for security;</p> <p>Takes a short ride for overall check.</p>	<p>Student has difficulty conducting the ABC Quick Check correctly, requiring help from a teacher or aide, and more several of the following are not completed correctly:</p> <p>Checks both tires for air;</p> <p>Checks both front and rear brakes (knuckle to knuckle) by spinning each tire and squeezing each brake;</p> <p>Checks the front chainring (gears) by grabbing the crank set and jiggling it;</p> <p>Checks the chain by turning the pedals with the rear wheel off the ground;</p> <p>Checks all quick releases (seat post, front, and rear wheel) for security;</p> <p>Takes a short ride for overall check.</p>	<p>Student has difficulty conducting the ABC Quick Check correctly, needing a significant amount of help in the process. The student fails to understand the process of the ABC Quick Check.</p>

3. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, & equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, & equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety

1. Remind students they should only use the rear brake to stop the bicycle, until their skill level advances to be able to safely use the front brake.
2. Students should only be visually inspecting the quick releases. Advanced students would only practice properly opening/closing and tightening/loosening the wheel quick release after proper instruction and constant supervision by the teacher.

Differentiating Instruction

Adapted

- Depending on the student's skill level, a teacher or aide may have to complete this activity for the student.
- At no time should a student be allowed to ride without a helmet. This may mean additional time should be allotted to fit students who may have additional challenges.

Beginner

- Students should only use the rear brake to stop the bicycle.
- Instruct students not to use the brake lever on the red side of the handlebar.
- This should be done until their skill level advances to be able to safely use the front brake. Student should only visually inspect the quick releases.
- Perform this activity as a group.

Intermediate and Advanced

- Students should be able to complete this activity independently.
- Intermediate and Advanced students can be paired with less skilled students to assist them in completing this activity.

Best Practices

1. The teacher should perform a quick visual inspection of proper helmet fit at the beginning of every class when on-the-bike activities are involved.
2. Use peers/partners to practice, inspect and correct helmet fit for each other. In addition to this being a way to reinforce proper fit, it will also make the most efficient use of class time. This should not replace teacher assessment.
3. Use head barriers if students are sharing helmets, because it is important for the prevention of head lice.
4. Ensure safety precautions if you or students opt to use their own helmets:
 - Check for the presence of CPSC label
 - Visually assess for the presence of obvious damage to the helmet
 - Request students to verify that helmets have not been associated with a previous crash. Teachers should have extra helmets for those students who are unsure or for any student the teacher opts to provide a helmet for class use.
5. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
6. Complete the ABC Quick Check at the beginning of every lesson.
7. Check the bicycle for proper fit every class. It is essential for students to check their bikes every day, particularly if bikes are shared with other students/classes.





SKILL-BASED ACTIVITY

Balance

Timeframe

Beginners: 10-12 minutes
Intermediate: 8-10 minutes
Advanced: 5 minutes

Objectives

At the conclusion of this activity, the student will be able to:

1. Demonstrate exceptional or reliable performance of the balance skill as measured by the balance rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards Standard 1
Standard 2
Standard 3
Standard 4

Equipment

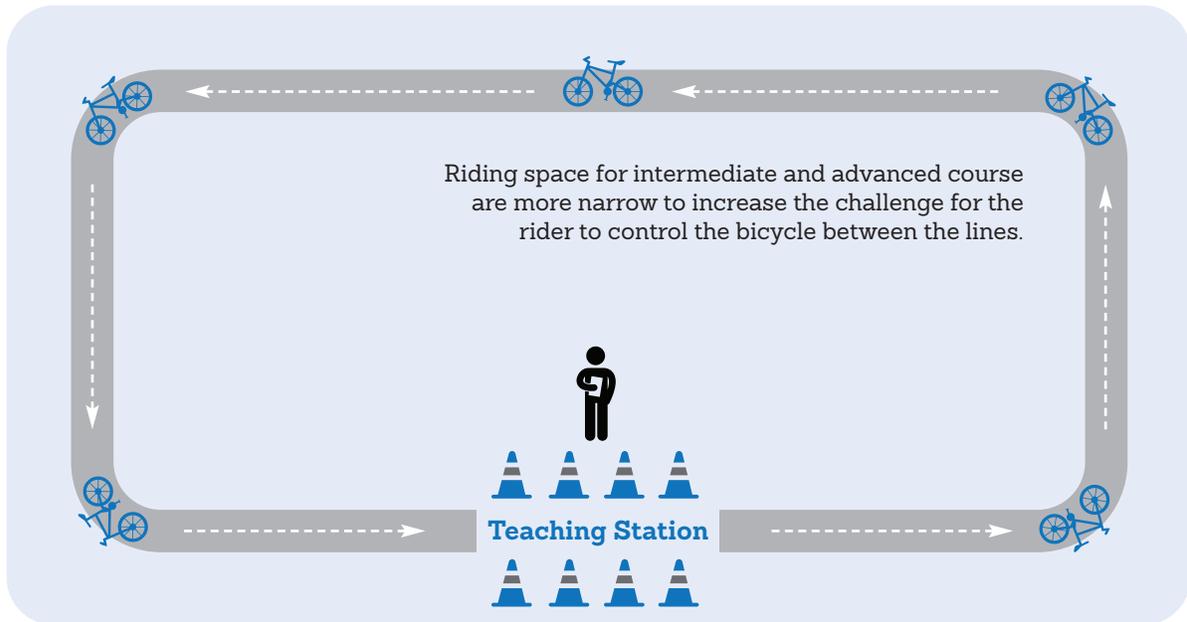
- Bicycles
- Helmets
- Head barriers
- Allen wrench
- Cones, domes, polypots or chalk to mark riding course
- Red floor tape

Teacher Overview This activity teaches and/or strengthens the key skill of balance. Students will be riding the bicycle with and without pedaling. Students with more advanced riding skills can be challenged by focusing on balance while riding very slowly.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
3. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.
4. Practice the balance skill before demonstrating to students.

Diagram: Balance Course



Directions

1. Introduce this activity using the following prompt:

Having good balance is a crucial component of controlling a bicycle. Today, we are going to practice balancing on a bicycle.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: What is the most important skill to know to ride a bicycle and why?

A: Any of the following:

- Balance is the most important skill to know because without balance we cannot ride a bicycle.
- Balancing on a bike is the first step to riding.
- Other responses may be accepted

Q: What muscles are used to help us maintain balance?

A: Any of the following:

- Core muscles:
 - Abdominals
 - Back muscles
 - Gluteal muscles

Q: Is there any other part of the body that helps us with balance?

A: Your inner ear.



The pedals can be removed, but most students can perform this exercise without any problems with the pedals attached.

3. Explain and demonstrate the balance skill without pedaling (coasting) to students in the teaching station, reinforcing the following points. Riders should:
 - Lower the bicycle seat so seated with both feet flat on the ground.
 - Use both feet to push forward, lift feet about an inch off the ground and coast.
 - Practice coasting to get a feel for balancing on the bicycle. Because the bicycle will coast slowly, riders can put their feet down if the bicycle begins to wobble too much.
 - Keep knees and feet close to the bicycle; this will enable better balance and allow for greater control to ride in a straight line.
 - Push and coast around the designated course, trying to increase the amount of time balancing between pushes.
 - Squeeze the saddle with both thighs to help with balance.
4. Instruct students to ride the designated course again and when riding through the chute, each rider should remain seated, pedal and try to remain within the boundaries of the chute without hitting the (cone, polyspot, etc.).

Assessment

1. Assess performance of the balance skill of each student using the following rubric.

PERFORMANCE RUBRIC: BALANCE SKILL

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student has excellent balance when pedaling and coasting, even when riding very slowly;</p> <p>Student can maintain balance riding in tight turns at a slower speed;</p> <p>Student may be able to attempt a track stand for up to a few seconds.</p>	<p>Student is able to balance in nearly all situations when pedaling and coasting;</p> <p>Student is able to balance at slower speeds, but may have difficulty maintaining balance during tight turns at slow speeds.</p>	<p>Student can pedal and maintain balance, but may at times be wobbly or weave some, as he loses and regains balance without putting down a foot;</p> <p>Student may not be able to ride slowly and maintain balance.</p>	<p>Student is unable to balance on 2 wheels for any length of time when pedaling;</p> <p>Student can balance when pushing on the ground with feet and/or may still be using training wheels.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, & equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Remove the pedals from some of the bicycles to help students successfully complete this activity.
- Allow students to practice balancing while using a bicycle that is on a stationary bicycle trainer.

Intermediate

- Instruct students that the slower a bicycle moves, the harder it is to maintain one’s balance.
- Have students take one pedal stroke to start riding.
- Students should see how long and slowly they can coast without pedaling or touching the ground.
- Students will have more success if they quickly, but subtly, move the handlebars back and forth as they are coasting.

Advanced

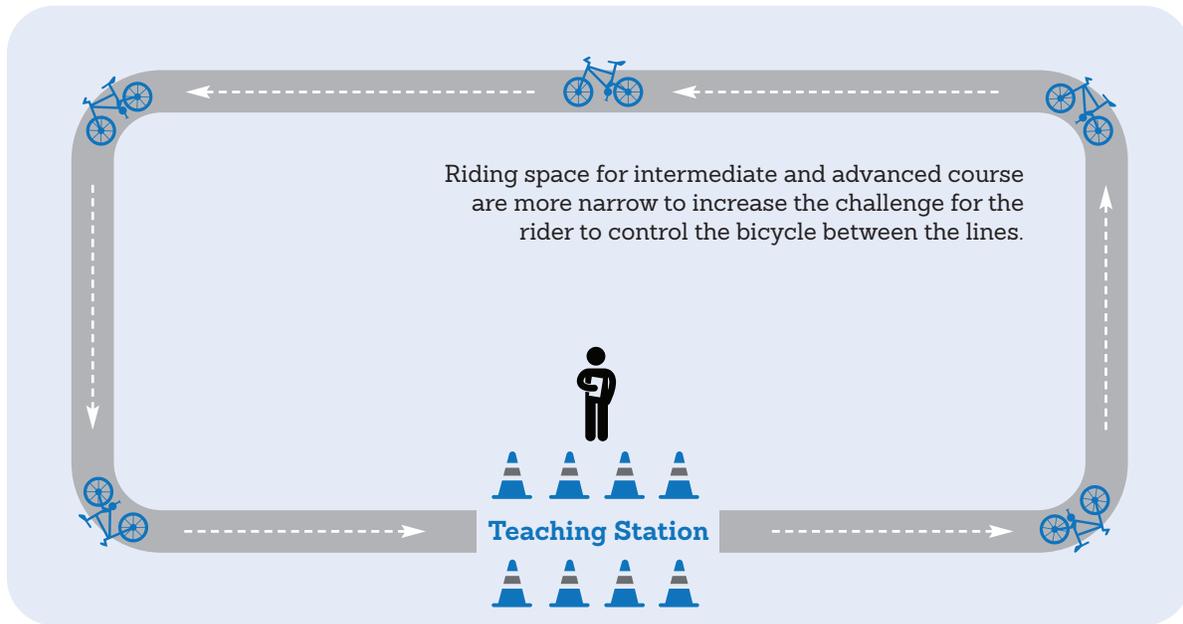
- Attempt a “track stand” to perfect balance. A track stand is when a rider attempts to balance on the bicycle with both feet on the pedals in a stationary position. The goal is to keep the wheels from moving forward or backward. The student may be in a sitting or standing position to perform this skill.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bikes-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.

Diagram: Controlled Braking Course



Directions

1. Introduce this activity using the following prompt:
Almost as important as being able to balance, is being able to safely stop a bicycle. In this activity, you will learn the difference in how the rear and front brakes each stop the bicycle. You will also practice stopping the bicycle in a controlled manner using the rear brake.
2. Use the following sample questions to prompt students thinking about the content in this activity.

Q: What are some reasons for braking on a bicycle?

A: Any of the following:

- You may need to slow or stop for various reasons
- Other answers may be accepted.

Q: Which brake controls which tire?

A: Left brake = front wheel; right brake = rear wheel.

Q: Why should braking happen in a controlled manner?

A: Any of the following:

- It is safer
- Uncontrolled braking can send a bicyclist over the handlebars or out of control.
- Explain and demonstrate the difference in how the front and rear brakes each stop the bicycle. Riders should:
 - Jog slowly forward next to the bicycle; apply just the rear brake and observe how the bicycle stops. Remember right is rear.
 - Jog slowly forward next to the bicycle; apply just the front brake and observe how the bicycle stops. Explain that this activity is focused on only using the rear brake. Using both the front and rear brakes will be taught in a future activity.

3. After this demonstration, use the following sample questions to further prompt students' thinking about the content in this activity.

Q: What is the difference between using the front and rear brakes?

A: Any of the following:

- The front brake stops the bicycle quicker
- The rear brake stops the bicycle slower
- A bicyclist has to be careful if just using the front brake
- Other responses may be accepted

Q: When would be a more appropriate time to use the rear brake?

A: On most occasions, the rear brake is used by itself. When you know you're going to stop you can slow down with the rear brake and then stop, not even needing to touch the front brake.

Q: When would you use the front brake, in combination with the rear brake, be necessary?

A: In an emergency situation when you need to stop suddenly, or coming down a steep hill.

4. Instruct students to begin riding on the designated course and remain in the **seated** position.

Upon entering the chute, remain in the **seated** position, apply the rear brake, come to a stop and place both feet on the ground.

5. Instruct students to begin riding on the designated course again and remain in the **seated** position.

Upon entering the chute, enter into the **standing** position, apply the rear brake, come to a stop and place both feet on the ground.

Assessment

1. Assess controlled braking of each student using the following rubric.

PERFORMANCE RUBRIC: CONTROLLED BRAKING

Exceptional	Reliable	Inconsistent	Struggling/ Survival
Student demonstrates the ability to control her braking, and come to a complete stop safely and effectively; Student is able to control which brake she uses; Student will use her rear brake to stop and does not use her front brake, except in emergency situations.	Student demonstrates the ability to control her braking, and come to a stop in the majority of cases; Student uses her rear brake to stop in most cases, but may want to rely on her front brake more than necessary.	Student sometimes uses her brake, but may use her feet on occasion to stop; Student is able to use her rear brake but, if available, will intermittently use her front brake; Student has some difficulty stopping safely and effectively.	Student is not able to use the hand brake correctly and/or safely, and may want to use her feet to stop, instead of her brake; Student does not understand how to use her brake to control stopping. Student is unable to stop safely and effectively.

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Encourage slower riding at first.
- Make sure the course used is safe and flat.
- Check that there is considerable space for students to safely ride, without obstacles or other rider interference. It may be necessary for an aide to work with adapted students and/or students who are truly beginners, to help them remember to use the brake instead of their feet to stop.

Intermediate and Advanced

- Students can progress to the Quick Stop found in Unit 3.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.

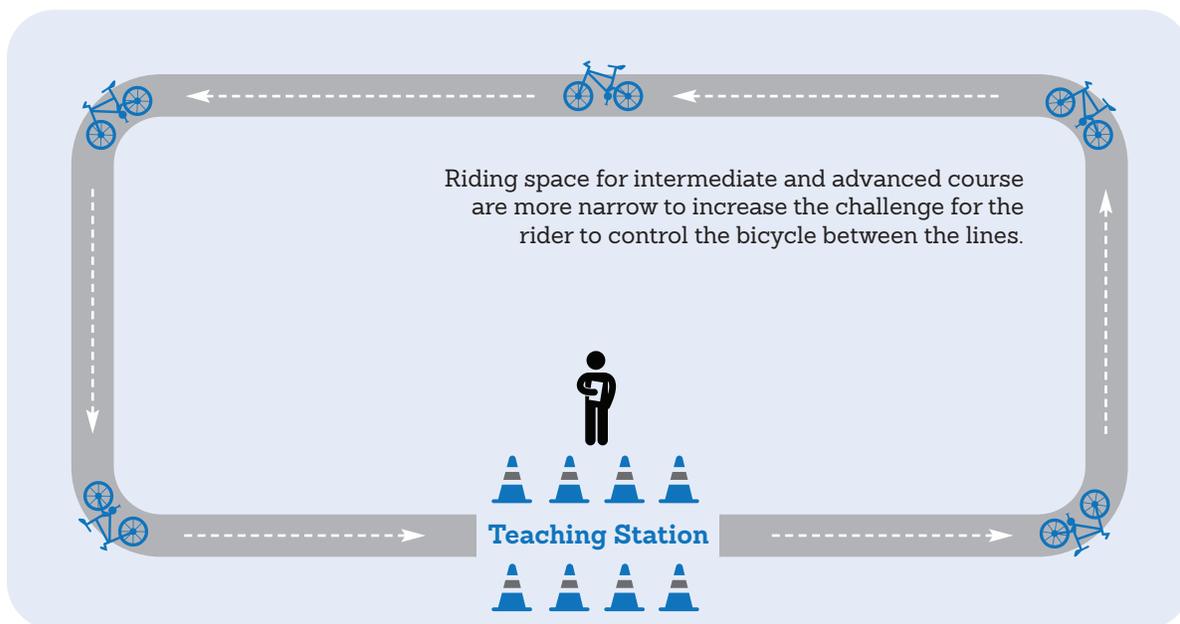


SKILL-BASED ACTIVITY

Straight-Line Riding

- Timeframe** **Beginners:** 5–7 minutes
Intermediate: 5 minutes
Advanced: 5 minutes
- Objectives** At the conclusion of this activity the student will be able to:
1. Demonstrate exceptional or reliable performance of straight line riding as measured by the straight line rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 3
Standard 4
- Equipment** • Bicycles
• Helmets
• Head barriers
• Allen wrench
• Cones, domes, polypots or chalk to mark riding course
• Red floor tape
- Teacher Overview** This activity reinforces the skill of riding a bicycle in a straight line. This activity can be conducted in a relatively short timeframe.
- Preparation** 1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
 3. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.
 4. Practice the straight line riding skill before demonstrating to students.

Diagram: Straight-Line Riding Course



Directions

1. Introduce this activity using the following prompt:

Straight line riding is a skill that is necessary to ride safely in a number of situations. Riding in a straight line allows bicyclists to ride on bike paths, and to ride next to friends and family, without causing a crash. Riding in a straight line also helps motorists, pedestrians and other bicyclists better able to predict a bicyclist's movements.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: Why would it be good to know how to ride in a straight line?

A: Any of the following:

- There might be times when riding in a straight line would be more appropriate.
- It is also safer to ride straight than to zigzag all over the road or bike path.

Q: When might you need to ride in a straight line?

A: Any of the following:

- If you were riding with a friend on a bike path and someone wanted to pass or someone was coming toward you.
- Bicyclists typically ride in single-file, instead of side by side, when riding on a street.
- Other responses may be accepted.

3. Discuss expected bicycle positioning while riding the course:
 - Aim to ride three-bicycles-lengths apart on riding course.
 - As students progress in skill level and control, they can ride as close as one bike length, but not until directed to do so by the teacher.
 - Ride at a controlled pace without passing other riders.
 - Ride on the course or between the lines.
4. Blow the whistle to stop students. Students should stop in a controlled manner, without tire skidding or getting too close to the rider in front of them.
5. Repeat activity step #4 to practice riding and stopping in a controlled manner. This will serve as the basis for classroom management during the bike unit.

Assessment

1. Assess performance of straight line riding for each student using the following rubric.

PERFORMANCE RUBRIC: STRAIGHT-LINE RIDING

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to maintain a straight line while riding alone and in a line of riders, without passing or overlapping wheels (maintaining appropriate safe distance);</p> <p>Student can stop and maintain a safe distance from the cyclist in front.</p>	<p>Student is able to maintain a straight line while riding alone and in a line of riders, but sometimes has difficulty in not overlapping wheels with the rider in front;</p> <p>Student can stop safely without touching wheels, but may overlap wheels with the rider in front.</p>	<p>Student can maintain a straight line for a short distance before weaving;</p> <p>Student has difficulty riding in a straight line with other riders and often overlaps wheels;</p> <p>Student has difficulty stopping without running into (or nearly running into) other riders.</p>	<p>Student is unable to maintain a straight line while riding, and is unable to safely ride in a straight line with other riders.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Beginning riders will often be more wobbly and have less ability to ride in a straight line; hence the need for a course that is wider. It is also very difficult for beginners to ride at a faster pace and riding slower makes maintaining balance and riding in a straight line more difficult – given the need for advanced balancing skills.
- Beginning riders will need space, time and a wider course, where they cannot hurt themselves or other students. Lower the seat so that beginning riders can touch the ground with their feet.

Intermediate and Advanced

- Challenge more advanced riders, as appropriate, to ride more slowly and/or ride within one bicycle length, while riding single-file.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bikes-lengths rule to promote safe riding. This is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.



SKILL-BASED ACTIVITY

Power Start

Timeframe

Beginners: 5-7 minutes
Intermediate: 5 minutes
Advanced: 5 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance of the Power Start skill as measured by the Power Start rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards Standard 1
Standard 2
Standard 3
Standard 4

Equipment

- Bicycles
- Helmets
- Head barriers
- Allen wrench
- Cones, domes, polypots or chalk to mark riding course
- Red floor tape

Teacher Overview

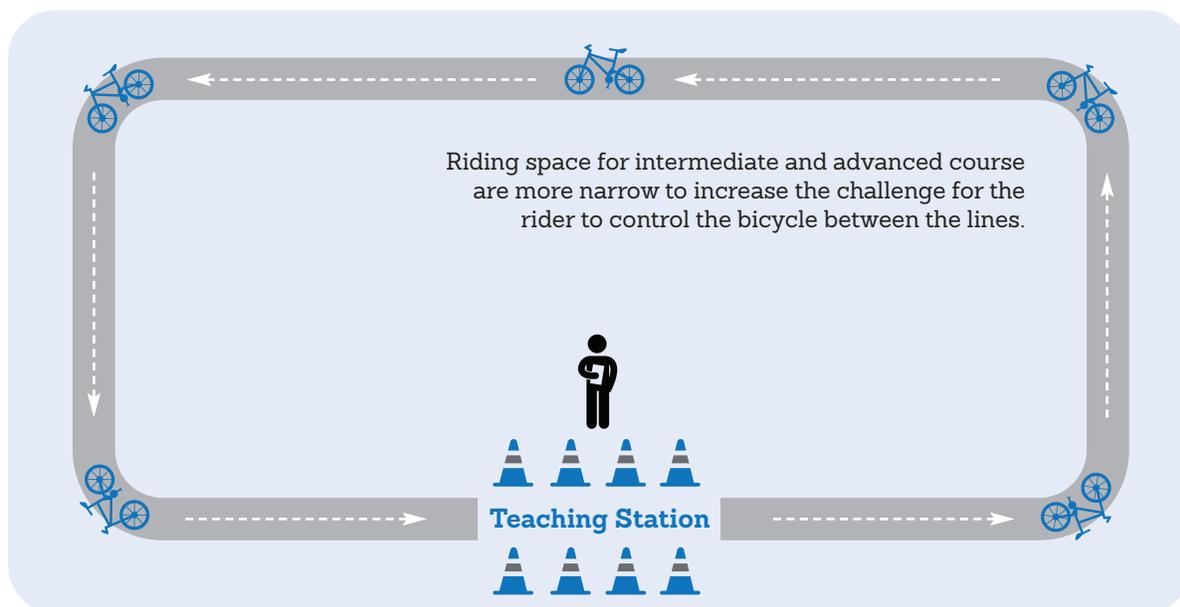
This activity enables the rider to begin riding in a strong, controlled manner. Although a basic skill, this can be challenging for beginning riders who are not comfortable standing on the pedals.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
3. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.
4. Practice the Power Start skill before demonstrating to students.



Diagram: Power Start Course



Directions

1. Introduce this activity using the following prompt:
Now we are going to learn how to start riding a bicycle in a strong, controlled manner and prevent hesitation and wobbling.
2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: Does it matter how you start riding?

A: Yes, there is a way to start to be more efficient.

Q: What might you gain if you started out standing?

A: Either of the following:

- Power
- Stability



3. Explain and demonstrate skills to students in the teaching station reinforcing the following points. Power Start, riders should:
 - Straddle the bicycle and place one foot on the ground, the other foot on the pedal between the 12 and 2 o'clock position. The rider should be standing, not sitting on the saddle.
 - Push down on the pedal moving it to the 6 o'clock position and push off the ground with the other foot at the same time. The rider should be standing above the saddle, coast, and count to three before placing the other foot onto the other pedal.
 - Then sit on the saddle.



4. Instruct students to begin the Power Start.
5. Instruct students to repeat the Power Start, using the other foot on the pedal to start.

Assessment

1. Assess performance of the Power Start for each student using the following rubric.

PERFORMANCE RUBRIC: POWER START

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student can start immediately, is able to get pedal into the correct position (near 12 o'clock) and start from a standing position, and push off with the ground foot;</p> <p>Student is able to pedal and coast for up to 3 seconds before sitting on the saddle;</p> <p>Student has power to his start.</p>	<p>Student can start immediately, is able to get the pedal into the correct position (near 12 o'clock) and start from a standing position, but may not push off with the ground foot;</p> <p>Student starts with a pedal, but may sit on the saddle immediately instead of coasting;</p> <p>Student may at times not have enough power to get going.</p>	<p>Student can get started more quickly, but may be unable to stand, and instead want to remain seated to start;</p> <p>Student is able to move the pedal into the correct position (near 12 o'clock) in order to begin pedaling when starting.</p>	<p>Student has difficulty starting from a Power Start position and often takes a great deal of time getting started;</p> <p>Student is unable to stand and start, and may not understand how to place the pedal (near 12 o'clock position) in order gain power to start riding.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in bicycling in a safe manner, and keeping all classmates safe during the bicycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in bicycling in a safe manner, and keeping all classmates safe during the bicycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Beginning riders will often want to start seated.
- An aide or volunteer may be needed to help beginners as they try a Power Start.
- Pairing more experienced peers with those less familiar with riding could also be useful.

Intermediate and Advanced

- Challenge these riders to start on an uphill, or in a single-file line while maintaining a safe distance.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bikes-length rule to promote safe riding. This is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.



SKILL-BASED ACTIVITY

Ready Position

Timeframe

Beginners: 5–7 minutes

Intermediate: 5 minutes

Advanced: 5 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance of the Ready Position skill as measured by the Ready Position rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards Standard 1
Standard 2
Standard 3
Standard 4

Equipment

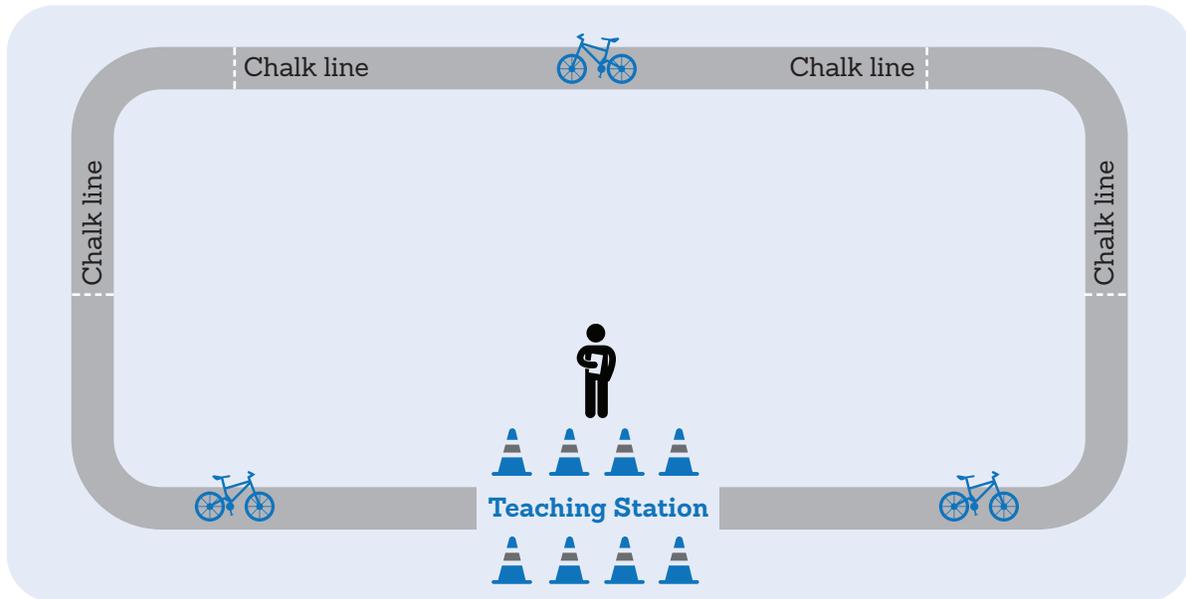
- Bicycles
- Helmets
- Head barriers
- Allen wrench
- Cones, domes, polypots or chalk to mark riding course
- Jump ropes
- Red floor tape

Teacher Overview This activity teaches a body position that enables a rider to be in control of the bicycle and be prepared to absorb bumps, ride over uneven terrain and be ready to make quick stops and turns.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up the riding course so that it varies in difficulty using chalk lines for less experienced riders and jump ropes for more experienced bicyclists.
3. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
4. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.
5. Practice the Ready Position skill before demonstrating to students.

Diagram: Ready Position Course



Directions

1. Introduce this activity using the following prompt:

Now we are going to learn how to perform the Ready Position. The Ready Position is a body position that helps keep you alert and ready to maneuver the bicycle. It will enable you to quickly control your bicycle if you ride over a bump or uneven terrain. It will also set you up to be able to quickly turn or stop if needed.

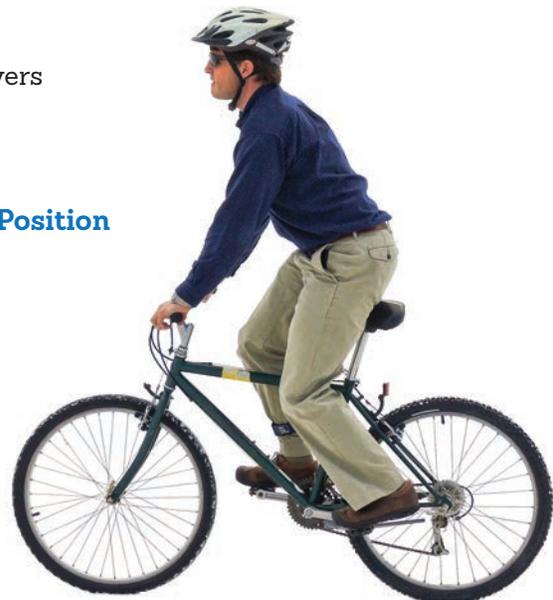
2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: How might you be prepared to run over something with your bicycle?

A: Any of the following:

- Ready Position
- Standing over saddle
- Fingers on the brake levers

Ready Position





- Cue:** two fingers
- Cue:** weight back
- Cue:** pedals parallel

3. Explain and demonstrate skills to students in the teaching station reinforcing the following points. Riders should:
 - Extend arms with two fingers resting on brake levers without squeezing the levers. **(Cue)**
 - Stand over the saddle, with the majority of weight over the back tire. **(Cue)**
 - Position pedals parallel to the ground, in the 9 o'clock and 3 o'clock position. **(Cue)**
4. Instruct students to perform the Ready Position while coasting through the chute.
5. Ride the designated course and perform the Ready Position when riding over chalk lines or jump ropes representing bumps on the course.
6. Provide more practice opportunities by instructing students to ride multiple laps around the designated course. While students are riding, the teacher should blow a whistle signaling the students to perform the ready position skill for five seconds and then continue riding.

Assessment

1. Assess performance of the Ready Position skill of each student using the following rubric:

PERFORMANCE RUBRIC: READY POSITION

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student has her fingers ready to brake;</p> <p>Student is standing with pedals in correct position (9 o'clock & 3 o'clock) and has her body weight distributed over the back of the bike;</p> <p>Student is able to maintain some flexibility as she rides in this position, so as to give with the terrain /bump in the road (e.g., railroad tracks).</p>	<p>Student has her fingers ready to brake, is standing in the correct position (9 o'clock & 3 o'clock), but may be unable to position weight over the back tire;</p> <p>Student may still ride in a rigid position, instead of being more flexible.</p>	<p>Student may not have her fingers ready to brake;</p> <p>Student can move her pedals into the correct position (9 o'clock & 3 o'clock), but may be unable to stand;</p> <p>If student does stand, she may be unable to position weight over the rear wheel;</p> <p>Student does have her fingers ready to brake.</p>	<p>Student doesn't have her fingers (if applicable) ready to brake; Student does not understand the Ready Position;</p> <p>Student cannot move the pedals to the correct position (9 o'clock & 3 o'clock);</p> <p>Student's weight is not positioned toward the back of the bike, and she is unable to stand.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, & equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, & equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted

- Divide students into separate courses, as needed, based on skill level. This will ensure a safe riding environment as students ride at a pace and through a course appropriate for their level.
- Beginners may not be able to stand on their bike, but can assume the pedal position (3 o'clock and 9 o'clock) while seated.

Intermediate and Advanced

- To challenge more advanced riders, use small tree limbs, several jump ropes in a row (to resemble a grate), and other small objects.
- Take care to ensure objects will not roll or move and present a safety issue.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bikes-lengths rule to promote safe riding. This is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.



SKILL-BASED ACTIVITY

Scanning

Timeframe

Beginner: 5-7 minutes
Intermediate: 5 minutes
Advanced: 5 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance of scanning as measured by the scanning rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards

Standard 1
Standard 2
Standard 3
Standard 4

Equipment

- Bicycles
- Helmets
- Head barriers
- Allen wrench
- Cones, domes, polypots or chalk to mark riding course
- Red floor tape

Teacher Overview

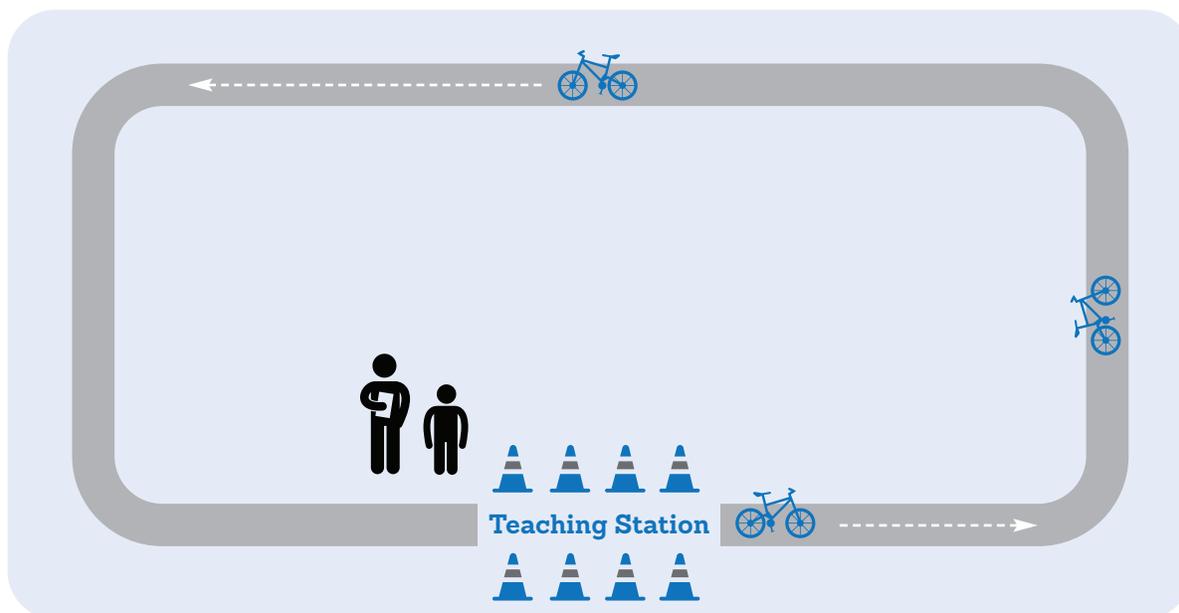
This activity teaches students how to scan behind them as they ride. When riding in traffic, bicyclists need to scan left and right for traffic and obstacles in the roadway on an ongoing basis. When preparing to turn or change lane positions, however, bicyclists like drivers, must not only scan left and right, but also scan for any traffic behind them. This skill involves looking over one's shoulder, identifying an object while looking (car, numbers of fingers, other object), all while maintaining a straight line on the bicycle. This is something that takes practice. Many will find that scanning over either the right or left shoulder is easier than the other. This activity is designed to give students practice scanning over both shoulders. This will require students to be able to balance while riding a bicycle.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a "chute" using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.

3. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.
4. Practice the scanning skill before demonstrating to students.

Diagram: Scanning Course



Directions

1. Introduce this activity using the following prompt:

*Today, we are going to practice looking to the rear while you are riding. This skill is called **scanning**. Because a bicyclist's surroundings are always changing, it is important to scan repeatedly during a ride. This makes scanning an essential bicycle safety skill. Bicyclists will sometimes find that scanning on one side is easier than the other. However it is important to be able to safely perform this skill from both sides. Therefore this skill will be practiced using both shoulders.*

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: How do riders know when it is safe to change lanes?

A: Riders must look around to see if cars are coming up behind them.

Q: What steps are necessary to scan?

A: Remain in the seated position, glance over the shoulder and continue riding in a straight line.

3. Explain and demonstrate skills to students in the teaching station reinforcing the following points. Riders should:

- Stay seated upon entering the chute.
- Glance over the shoulder - touching the chin to the shoulder - and continue riding in a straight line within the lines of the chute. **(Cue)**

Cue:

Chin to shoulder.



- Maintain a straight line of travel. This is one of the biggest challenges with scanning. To assist those students who continue to turn the handlebars of the bicycle when they scan, instruct those students to release the hand on the same side that the rider is scanning from the handlebar and drop it to the thigh while scanning.

4. Instruct students to begin riding the designated course with a Power Start.
5. Position yourself along the side of the chute with polypots, some other type of colored objects or large pictures of objects or signs. It is important for students not just to glance quickly, but to actually focus on surroundings behind the rider. The student will need to be able to identify what is being held up.
6. Instruct student to look over their left shoulder upon entering the chute and identify the color of the object being held up by the teacher, while remaining within the boundaries of the chute.
7. Repeat activity steps #4-6 using the right shoulder.
8. Provide more practice opportunities, for students by instructing them to ride multiple laps around the designated course. While students are riding, the teacher should blow a whistle signaling for the students to scan over either shoulder for five seconds and then continue riding.

Assessment

1. Assess performance of scanning for each student using the following rubric:

PERFORMANCE RUBRIC: SCANNING

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to scan over his shoulder for a longer period of time, enabling him to clearly see what is behind him;</p> <p>Student can scan without weaving or losing control of the bike.</p>	<p>Student is able to scan over his shoulder, but the scan may too brief to see much;</p> <p>Student may occasionally weave as a result of scanning, but is able to get the bike under control quickly.</p>	<p>Student is able to briefly glance over his shoulder (right or left), but typically then weaves/loses control as a result of turning his body and/or handlebars while scanning;</p> <p>Student does not understand the importance of scanning while riding.</p>	<p>Student is unable to scan while riding, so he must stop first and then look over his shoulder (right or left) to scan, then begin riding again;</p> <p>Because student has difficulty with balance and straight line riding, scanning is difficult and not safe to do while riding;</p> <p>Student may also not understand the importance of scanning.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bikes-lengths between each rider.
5. Instruct students that when they scan over the right shoulder, they will need to keep both hands on the handlebar to ensure that if braking is needed, it is done with the rear brake.

Differentiating Instruction

Adapted and Beginner

- Beginning students who have difficulty with straight line riding will likely have difficulty scanning while riding.
- Beginners may need to ride, stop and scan and then ride again, slowly moving to the point of not stopping.
- Having a wider course/chute for beginners is necessary.

Intermediate and Advanced

- Set up a more difficult course for more experienced bicyclists.
- Have students scan and call out what they see.
- Make objects more difficult to see while scanning.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Complete the Helmet Fit and ABC Quick Check at the beginning of every class when students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bikes-lengths rule to promote safe riding. This is a reminder for students to keep a safe distance between each other while riding single-file. To help maintain proper spacing, use a marker on the course so students can see when it is their turn to go: when the person in front of them gets to the marker, the next student may start.



SKILL-BASED ACTIVITY

Signaling

Timeframe

Beginners: 5–7 minutes
Intermediate: 5 minutes
Advanced: 5 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance of signaling as measured by the signaling rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards Standard 1
Standard 2
Standard 3
Standard 4

Equipment

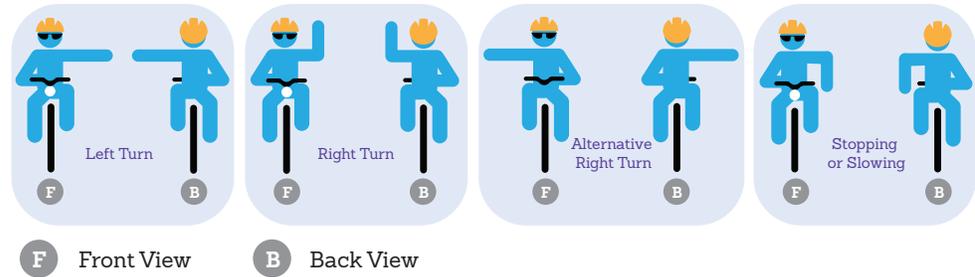
- Bicycles
- Helmets
- Head barriers
- Allen wrench
- Cones, domes, polypots or chalk to mark riding course
- Red floor tape
- *Hand Signals* handout

Teacher Overview This activity has students practicing hand signals while riding a bicycle. This skill will require students to ride with one hand while signaling and therefore will require a good deal of balance.

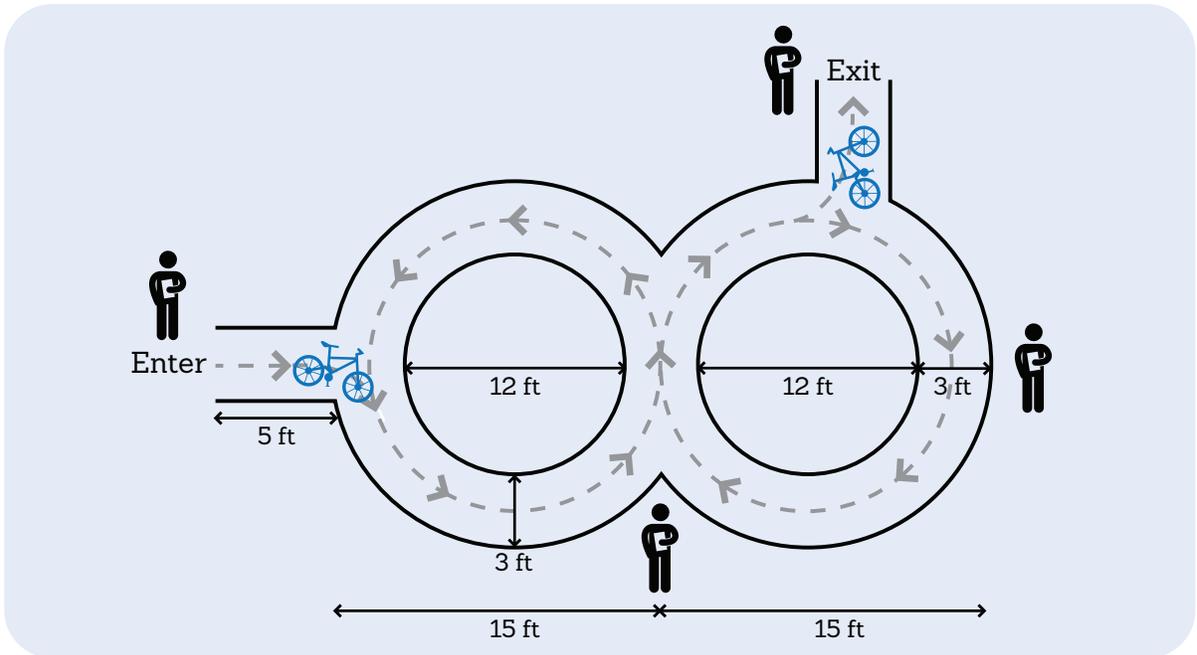
Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
3. If bicycles have both front and rear brakes: Wrap the left handle of the bicycle with red floor tape to discourage students from using the front brake, until proper braking skill is taught.
4. Practice signaling before demonstrating to students.

Hand Signals



Signaling Course



Directions

1. Introduce this activity using the following prompt:

Now we are going to learn how to signal turning and stopping while riding a bicycle. Signals help other road users (drivers, riders and pedestrians) know your intentions when riding. Using hand signals to indicate turning requires being able to ride the bicycle with one hand – it takes skill and practice. As a vehicle on the road, bicyclists are required by law to signal to other bicycle riders or motor vehicles. Like scanning, using hand signals and maintaining a straight line while bicycling, takes practice. It is also important to verbalize signals, when riding with other bicyclists, so when signaling a stop, the cyclists should also call out “stopping.”

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: How do drivers of cars signal other drivers of their intentions?

A: With blinkers

Q: Early cars did not have blinkers, so how did drivers signal back then?

A: With hand signals, out the driver's side window

Q: What if a modern-day car's blinker lights are broken? How should the driver signal?

A: The driver should use hand signals

Q: What is the signal for a left turn?

A: Left arm out and parallel to ground, pointing left

Q: What is the signal for right turn?

A: Left arm out, parallel to the ground, elbow bent and hand pointing up

Q: What is the signal for stopping?

A: Left arm out, parallel to the ground, elbow bent and hand pointing down

Q: Why should signals be used when bicycling?

A: Responses can include:

- Bicycles are considered vehicles and must abide by traffic laws
- Signals let others know what a bicyclist intends to do

3. Practice hand signals with students, with them standing next to their bicycles as a group.

4. Instruct students to begin riding the designated course with a Power Start.

5. Instruct students to remain seated upon entering the chute, use their left hand to perform the three hand signals one right after another - right, left and stop - while staying within the boundaries of the chute.

6. Provide *Hand Signal* handout for take home (optional)



In some states it is legal to signal a right turn by using the right hand to point to the right, similar to the left turn signal. However, this practice is questionable among many safe bicycle advocates for several reasons. The driver of a motor vehicle is more likely to notice the signal made on the left side because it is being made on the driver's side of the vehicle. Many advocates feel bicyclists should use the same signals that are taught in their states driver's education courses and in their motor vehicle operator's manual. Most importantly for children and other inexperienced riders, making the signal with the left hand enables the rider to brake with the rear brake, using their right hand and therefore less likely to flip over the front of the handlebars if the left hand uses the front brake.

Assessment

1. Assess performance of signaling for each student using the following rubric:

PERFORMANCE RUBRIC: SIGNALING

Exceptional	Reliable	Inconsistent	Struggling/ Survival
Student has no difficulty signaling and uses the correct signals appropriately; Student signals prior to a turn, and then replaces his hand to make the turn.	Student is able to signal appropriately and replace his hand for turning; Student may weave just slightly when signaling, but regains control of the bike quickly, even with one hand.	Student may have difficulty remembering which signal to use at the appropriate time; Student may be uncomfortable riding with one hand when signaling, and may weave when signaling.	Student is unable to ride with one hand and signal, so he must stop, signal, then restart; Student may not understand the need to signal and/or be able to differentiate signals.

Signaling

Because a bicycle is a vehicle, bicyclists must signal intention to turn or stop by using hand signals. The left hand is safest to perform these signals for a number of reasons:

- The right hand controls the rear brake and would allow a rider to signal and apply the brakes without the danger of being thrown over the handlebars.
- Motorists may not recognize or expect to see turn signals being made with the right hand. (We recommend you teach what is provided in your state driver's manual).

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted

- Students may need to practice riding with one hand only, prior to using hand signals. This will require balance; so beginning riders will need space where they will not run into other. This process will take time and gradual “letting go”
- Beginning riders may also need to stop, signal and start again. Safety and control of the bike are first and foremost; signaling with the hand may be a necessary step, but it in no way replaces the need for arm signals.

Intermediate and Advanced

- Use field paint or chalk to draw a large figure eight somewhere along the designated course.
- Instruct students to circle the field and, when they reach the figure eight, to ride on the lines of the figure eight with the left hand signaling a right turn. This will help increase the student’s comfort level with riding with one hand.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bikes-lengths rule to promote safe riding. This is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.



CLOSURE ACTIVITY

Walk & Share

- Timeframe** **Beginner:** 3-5 minutes
Intermediate: 3-5 minutes
Advanced: 3-5 minutes
- Objective** At the conclusion of this activity the student will be able to:
1. Describe key concepts from Unit 2 including: Power Start, Ready Position, Scanning and Signaling as measured by completion of the *Bicycle Handling Skills worksheet*. (Cognitive)
- National Standards** Standard 2
Standard 4
- Equipment** • *Bicycle Handling Skills* worksheet
• Pencils
- Teacher Overview** This activity prompts the students to think about what they have learned during Unit 2, by asking questions about basic bicycle handling skills. By working in groups to respond to the questions, the brainstorming will initiate peer discussion about safe bicycling behaviors.
- Preparation** Make appropriate number of copies of *Bicycle Handling Skills worksheets*
- Directions** 1. Introduce this activity using the following prompt:
- We have now completed Unit 2 – “Bicycle Handling Basics.” All of the skills learned in this module to help you better control of your bicycle and communicate with other road users. Balance, controlled braking, scanning and signaling are essential skills to master and periodically practice.*
2. Divide students into pairs.
 3. Ask students to walk the perimeter of the gym. Explain that they will be given questions that they need to discuss with their partner when walking.
 4. Instruct students to stop when the whistle blows, and be prepared to share something that they discussed with their partner.
 5. Use the following sample questions to prompt students’ thinking about the content presented in this unit.
- Q: What is the key to being able to ride a bicycle?**
A: Balance.



Q: Why is controlled braking a necessary skill to master?

A: Controlled braking enables a bicyclist to safely stop a bicycle.

Q: Why should hand signals be used when riding?

A: Responses can include:

- Because a bicycle is a vehicle and by law needs to signal to other road users
- So other bicyclists and drivers are aware of what you are preparing to do

Q: What are the hand signals for left turn, right turn, stopping?

A: Left arm out straight; left arm out, elbow bent with hand up; left arm out, elbow bent with hand down

Q: What is the Power Start position?

A: While straddling the bicycle, place one foot on the ground, the other foot on the pedal in the 12 o'clock position. The rider should be standing, not sitting on the saddle. Push down on the pedal moving it to the 6 o'clock position. Push off the ground with the other foot; similar to how one would ride a scooter. The rider should be standing above the saddle, coast and count to three before placing the other foot onto the other pedal. Then sit on the saddle.

Q: Why is the Power Start a useful skill to know? When should it be used?

A: The Power Start helps the bicyclist begin riding in a strong and controlled manner. The Power Start can be used any time a rider moves from a stopped position.

Q: Why is the Ready Position important to practice?

A: This position allows the rider to be prepared for obstacles and to make sudden moves more safely because of the balanced position on the bicycle

Q: What is the Ready Position?

A: Arms are extended with two fingers over brake levers. The rider is standing over the saddle, with the majority of weight over the back tire. The pedals are parallel to the ground, in the 9 o'clock and 3 o'clock position. **(Cue)**

Cue: two fingers
Cue: weight back
Cue: pedals parallel

Assessments

1. Successful completion of the *Bicycle Handling Skills* worksheet

Safety

1. Do not let students run or walk too quickly if carrying pencils

Differentiating Instruction

All levels

- Choose appropriate questions based on skill and ability level of students.

Intermediate and Advanced

- Set up lanes that students need to travel in. Include stop signs and intersections.



UNIT 3

Emergency Bicycle Handling Skills

OBJECTIVES

At the conclusion of this unit the student will be able to:

1. Describe emergency bicycle handling as measured by completion of the *Emergency Bicycle Handling* worksheet. (Cognitive)
2. Demonstrate exceptional or reliable hazard-avoidance as measured by the hazard-avoidance rubric. (Psychomotor)
3. Demonstrate exceptional or reliable Quick Stop as measured by the quick stop rubric. (Psychomotor)
4. Demonstrate an exceptional or reliable Instant Turn as measured by the Instant Turn rubric. (Psychomotor)
5. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
6. Describe key concepts from Unit 3, hazard-avoidance, Quick Stop and Instant Turn, as measured by completion of the *Emergency Skills* worksheet. (Cognitive)
7. List and describe key concepts from Unit 3 that illustrate a clear understanding of the need to have emergency bicycle handling skills as measured by providing responses to questions in journals. (Cognitive)

NATIONAL STANDARDS FOR K-12 PHYSICAL EDUCATION

Standard 1

The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

Standard 2

The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.

Standard 3

The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4

The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5

The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.



Cue:

Stop on a dime

KEY VOCABULARY/TERMS

Hazard Avoidance: Also referred to as Rock Dodge, Serpentine or Slalom is a skill to teach the bicyclist how to avoid roadway hazards without swerving wildly perhaps into traffic.

Instant Turn: Is a skill that enables the bicyclist to make a very quick turn when there is neither time nor the room for a normal turn.

Quick Stop/Emergency Stop: Is a skill that enables the bicyclist to stop very quickly in a short distance. The bicyclist applies both brakes while moving his/her body back and low over the rear tire. This position lowers the rider's center of gravity and puts more weight over the rear wheel, both of which help keep the rider from flying over the handlebars. **(Cue)**

ACTIVITIES

Each unit should include three types of activities: introduction, skill-based with assessments and closure. In some cases, more than one activity option is offered for the introduction and closure; choose the appropriate activities that fit into your allotted class time when developing your lesson plans. If class time is too short to allow for all three types of activities, focus your lesson on the skill-based activities.

Introduction: The following activity can be used to introduce this unit of learning.

- Walk & Share

Skill-Based with Assessments: Each skill-based activity is associated with an assessment to measure student knowledge and application of the identified skill. Depending on the amount of class time available and the skill level of students, more than one of the following skill-based activities may be completed during one class. All of the skill-based activities are considered essential in creating the foundation for safe bicycling. Regardless of skill level and/or if students have learned this material in previous years, all skill-based activities in this unit should be completed before moving to the next unit. This will ensure that students have the safety knowledge and basic skills necessary to practice safe bicycling behaviors.

- Hazard-Avoidance
- Quick Stop
- Instant Turn

Closure: The following activities can be used to conclude this unit of learning. If desired, these activities can be assigned as homework. Choose which best fits the needs of your students and class.

- Walk & Share
- Journal writing

EQUIPMENT NEEDED

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polypots or chalk to mark riding course
- Pencils
- Emergency Bicycle Handling worksheet
- Emergency Skills worksheet
- Student journals
- Stop signs

CROSS-CURRICULAR ACTIVITIES

Language Arts

- Journal writing



SKILL-BASED ACTIVITY

Quick Stop

Timeframe

Beginner: N/A
Intermediate: 20 minutes
Advanced: 15 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate an exceptional or reliable Quick Stop as measured by the hazard-avoidance rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards Standard 1
Standard 2
Standard 3
Standard 4

Equipment

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Cones, domes, polypspots or chalk to mark riding course
- Red floor tape

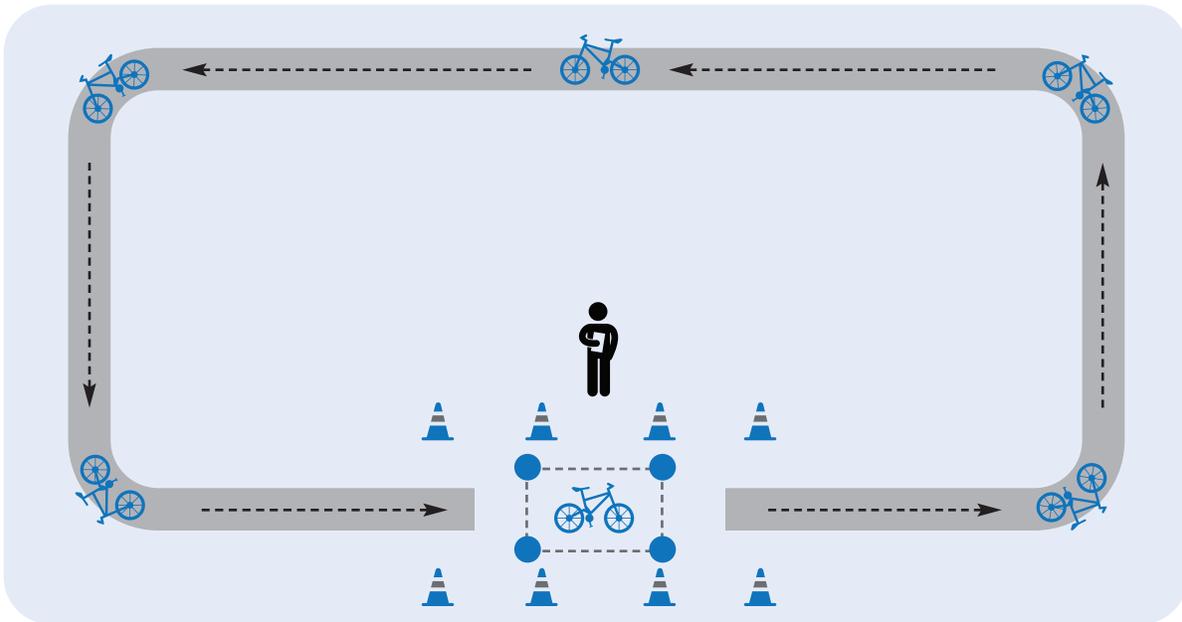
Teacher Overview

This activity teaches and/or strengthens the emergency bicycle handling skill of stopping quickly in a limited space. Learning to stop a bicycle in a controlled manner is one of the most important safety maneuvers that can be learned. A typical braking maneuver tends to use more rear braking power, often resulting in a skid. The drawback to this type of braking is that it requires a greater braking distance to stop and the rider does not have as much control over the bicycle. The quick stop enables the rider to make an immediate stop, by using both the front and rear brakes and requires a much shorter braking distance.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a “chute” using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students and where students will return when instructed.
3. Within the chute, place 4 cones, domes or polypspots creating a square that is the length of about one bicycle.
4. Practice the Quick Stop skill before demonstrating to students.

Diagram: Quick Stop Course



Directions

1. Introduce this activity using the following prompt:

Learning to stop a bicycle in a controlled manner is one of the most important safety maneuvers that can be learned. A typical braking maneuver tends to use more rear braking power, often resulting in a skid. The drawback is that it requires a greater braking distance to stop and the rider does not have as much control over the bicycle. This type of braking would not work well if you had to stop in an emergency without a lot of room. So today, we will be learning about the Quick Stop. The Quick Stop enables the rider to make an immediate stop, by using both the front and rear brakes and requires a much shorter braking distance.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: Why might you have to stop suddenly on a bicycle?

A: Any of the following:

- A vehicle turns in front of you
- A child or dog runs out in front of you
- Other responses may be accepted

Q: If you have ever stopped suddenly, what did it feel like?

A: Any of the following:

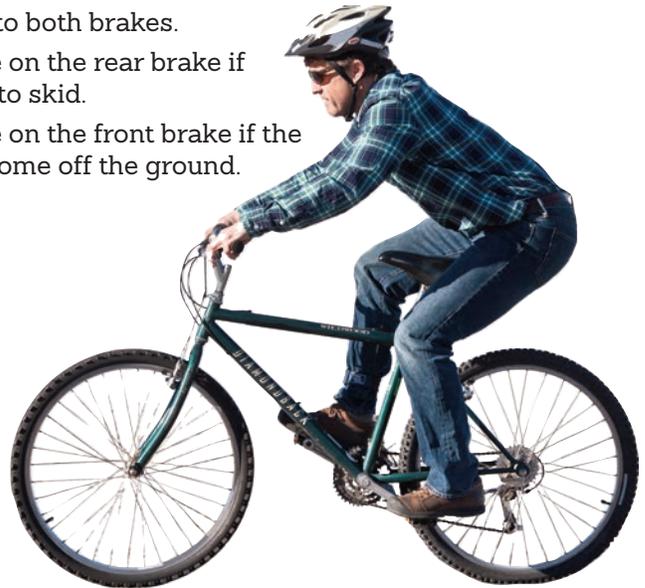
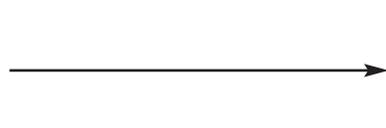
- Like I might fly over the handlebars
- Out of control
- Like I might fall
- Other responses may be accepted

3. Complete the following steps #4-10 if Helmet Fit and ABC Quick Check have not been completed as part of the current day's lesson; otherwise proceed to step #11.



4. Divide students into groups of two or three.
5. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
6. Instruct students to retrieve bicycles according to number assigned.
7. Instruct one student to complete the ABC Quick Check while the other student observes to ensure that the check was completed properly and to provide prompts if an item was missed.
8. Switch roles so the other partner(s) completes the ABC Quick Check.
9. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
10. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.
11. Explain and demonstrate the Quick Stop skill to students in the teaching station, reinforcing the following points. Riders should:
 - Position body weight over the rear tire. The position is similar to the ready position, but more body weight should be over the rear tire. This is critical, so the bicyclist will not flip over the handlebars.
 - Apply equal pressure to both brakes.
 - Decrease the pressure on the rear brake if the rear wheel begins to skid.
 - Decrease the pressure on the front brake if the rear wheel begins to come off the ground.

Emergency Quick Stop



12. Instruct students to jog, next to the bicycle and apply just the rear brake. Observe how the bicycle stops.
13. Instruct students to jog next to the bicycle, apply just the front brake. Observe how the bicycle stops.
14. Instruct students to jog next to the bicycle, and equally apply both the front and rear brakes. Observe how the bicycle stops. (Red floor tape is taken off of front brake to teach this skill.)

**Cue:**

Stop on a dime

15. Instruct students to begin riding the designated course with a power start.
16. Instruct students to perform the Quick Stop and stop within the square in the chute. **(Cue)**
17. Provide more practice opportunities by instructing students to ride multiple laps around the designated riding course. While students are riding, blow a whistle to signal students to perform the Quick Stop and then continue riding.

Assessment

1. Assess Quick Stop of each student using the following rubric.

PERFORMANCE RUBRIC: QUICK STOP

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to stop quickly and maintain balance (body back over rear tire) so that she can then continue riding without placing her feet on the ground;</p> <p>Student uses equal pressure on both front and rear brakes;</p> <p>Student is able to judge when to apply more or less pressure to one brake, given the situation (rear wheel skidding or rear wheel leaving the ground).</p>	<p>Student is able to stop quickly and maintain balance (body back over rear tire) on most attempts;</p> <p>Student may not be able to maintain balance well enough after stopping that she can then continue riding, without placing her feet on the ground;</p> <p>Student is able to use equal pressure on both front and rear brakes;</p> <p>Student may have difficulty judging when to apply more or less pressure on one brake, given the situation (rear wheel skidding or rear wheel leaving the ground).</p>	<p>Student is able to stop, but not quickly enough for an emergency situation;</p> <p>Student has difficulty maintaining balance and needs to put her feet on the ground;</p> <p>Student may not be able to keep body weight over back tire.</p> <p>Student does not fully understand how to apply equal pressure on both brakes, and typically has more pressure on one brake, causing the bike to skid or the rear wheel to leave the ground.</p>	<p>Student is unable to perform a Quick Stop and must continue to work on controlled braking;</p> <p>Student may not understand when it is appropriate to use the front brake, and does so in an unsafe manner.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in bicycling in a safe manner, and keeping all classmates safe during the bicycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in bicycling in a safe manner, and keeping all classmates safe during the bicycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
3. Instruct students to keep at least three-bikes-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- This skill is difficult to perform. It should be taught only to intermediate/advanced level riders.
- Continue to practice controlled braking.

Intermediate

- When performing the quick stop, students can place one or both feet on the ground after stopping and then continue riding.

Advanced

- When performing the quick stop, students should be able to stop without placing feet on the ground and then continue riding.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between bicyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go: when the person in front of them gets to the marker, the next student may start riding.



UNIT 4

Advanced Bicycle Handling Skills

OBJECTIVES

At the conclusion of this unit the student will be able to:

1. Demonstrate a variety of on-the-bike skills from previous lessons, during the warm-up ride, as measured by successful completion of the Course Ride. (Psychomotor)
2. Demonstrate exceptional or reliable performance of the Figure 8 Ride skill as measured by the Figure 8 rubric. (Psychomotor)
3. Demonstrate exceptional or reliable performance of the Snail Race as measured by the Snail Race rubric. (Psychomotor)
4. Demonstrate exceptional or reliable performance of gearing as measured by the gearing rubric. (Psychomotor)
5. Demonstrate exceptional or reliable performance of the Water Bottle Pickup as measured by the gearing rubric. (Psychomotor)
6. Demonstrate exceptional or reliable performance of the Bunny Hop as measured by the Bunny Hop rubric. (Psychomotor)
7. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
8. List and describe key concepts from Unit 4 that illustrate a clear understanding of the need to have advanced bicycle handling skills, as measured by providing responses to questions in journals. (Cognitive)
9. Describe how they feel about their ability to ride safely and their level of enjoyment of bicycling, as measured by providing responses to questions in journals. (Affective)

The skill-based activities in Units 1-3 create the foundation for safe bicycling. Regardless of students' skill level or previous bicycling knowledge, the skill-based activities in Units 1-3 should be completed *before* completing the activities in Unit 4.

NATIONAL STANDARDS FOR K-12 PHYSICAL EDUCATION

Standard 1

The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

Standard 2

The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.

Standard 3

The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4

The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5

The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

KEY VOCABULARY/TERMS

Bicycle Trainer: A piece of equipment that makes it possible to ride a bicycle while it remains stationary. They are commonly used to train for races, or when riding conditions outside are not favorable. Using a trainer indoors allows the rider to perform other activities while riding, looking down at gears, without risk of injury.

Bunny Hop: An advanced skill that strengthens the rider's ability to avoid an obstacle by jumping over the obstacle while on the bicycle.

Cadence/Pedal RPM: The number of times during one minute that a pedal stroke is completed. It is the rate of pedaling measured in revolutions per minute.

Course Ride/Velo Ride: A designated riding course with bicycle skill stations set up along the course.

Figure 8/Turn and Yield: An advanced skill that strengthens the rider's ability to turn in different directions yield while maintaining balance, control, speed and distance.

Snail Race/Slow Race/Wobble Ride: An advanced skill that strengthens the rider's ability to ride at a slow speed. Riders start the race together and the last one across the finish line wins—no weaving or touching the ground is allowed. The purpose of this race is to reward low speed that requires balance skills.

Water Bottle Pickup: An advanced skill that strengthens the rider's ability to take a hand off the handlebar while maintaining balance, control, speed and distance.

ACTIVITIES

Each unit should include three types of activities: introduction, skill-based with assessments and cool-down/closure. In some cases, more than one activity option is offered for the introduction and closure; choose the appropriate activities that fit into your allotted class time when developing your lesson plans. If class time is too short to allow for all three types of activities, focus your lesson on the skill-based activities.

Introduction: The following activity can be used to introduce this unit of learning.

- Course Ride

Skill-Based with Assessments: Each skill-based activity is associated with an assessment to measure student knowledge and application of the identified skill. Depending on the amount of class time available and the skill level of students, more than one of the following skill-based activities may be completed during one class.

- Figure 8
- Snail Race
- Gearing
- Water Bottle Pickup
- Bunny Hop
- Advanced Cycling Skill Stations

Closure: The following activity can be used to conclude this unit of learning. If desired, this activity can be assigned as homework.

- Journal writing

EQUIPMENT NEEDED

- Helmets
- Head barriers
- Bicycles
- Bicycle Trainers (optional but recommended)
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polyspots or chalk to mark riding course
- Pencils
- Student journals
- Cones for Water Bottle Pickup activity
- Water bottles or other equipment students can pick up off a cone (bean bags, yarn balls, tennis balls, etc.)
- Chalk, jump ropes and very small sticks for Bunny Hop activity

CROSS-CURRICULAR ACTIVITIES

Language Arts

- Journal writing

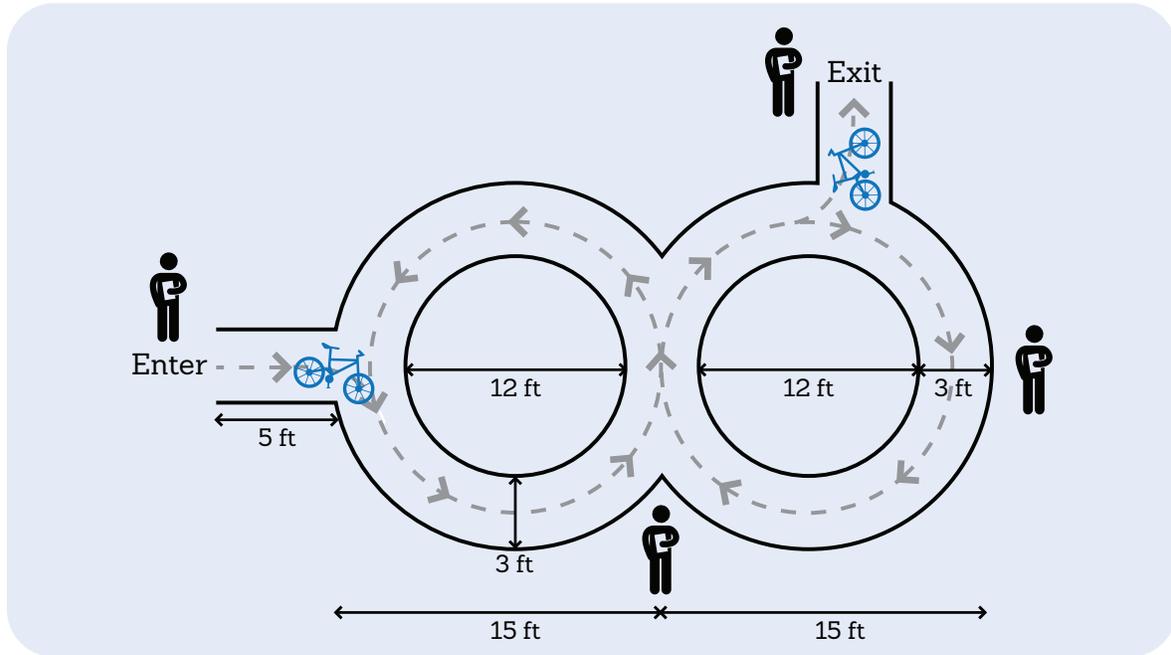


SKILL-BASED ACTIVITY

Figure 8 Ride

- Timeframe** **Adapted and Beginner:** 8-10 minutes
Intermediate: 8-10 minutes
Advanced: 8-10 minutes
- Objectives** At the conclusion of this activity the student will be able to:
1. Demonstrate exceptional or reliable performance of the Figure 8 Ride skill as measured by the Figure 8 rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 3
Standard 4
Standard 5
- Equipment**
- Helmets
 - Head barriers
 - Bicycles
 - Bicycle pump
 - Allen wrench
 - Red floor tape
 - Cones, domes, polyspots or chalk to mark riding course
- Teacher Overview** This activity is an advanced skill designed to strengthen the rider's ability to turn in different directions and yield while maintaining balance, speed, distance and control of the bicycle. Because multiple students will be riding the course together, students will practice communicating with other riders. This activity teaches the traffic skills of changing directions and changing lanes. When bicyclists ride in traffic, they will frequently have to change direction with little or no warning.
- Preparation**
1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
 2. Set up a Figure 8 Course, using cones, chalk or field paint, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students and where students will return when instructed.
 3. Mark the starting point with chalk, field paint or cones, allowing approximately 5 feet of riding before the bicyclist enters the Figure 8 at the opening shown in the diagram.

Diagram: Figure 8 Ride Course



4. Have two touching circles, each 15 feet in diameter; two inside circles 12 feet in diameter.
5. Refer to differentiating instruction for suggestions on set up for varying skill levels.
6. Practice the Figure 8 skill before demonstrating to students.

Directions



1. Introduce this activity using the following prompt:

Today, we will be working on more advanced bicycle handling skills in this activity. The Figure 8 Ride will help with balance while changing direction and yielding. The more comfortable you are handling your bicycle, the safer you will be and other bicyclists will be when around you. This is also a skill that will be important if you ride with traffic.
2. Complete the following steps #3-9 if Helmet Fit and ABC Quick Check have not been completed as part of the current day's lesson; otherwise proceed to step #10.
3. Divide students into groups of two or three.
4. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
5. Instruct students to retrieve bicycles according to number assigned.
6. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly and to provide prompts if an item was missed. Switch roles.

7. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
8. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.
9. Explain and demonstrate skills to students on the Figure 8 course reinforcing the following points. Riders should:
 - Follow the figure 8 pattern without placing a foot on the ground
 - Ride at a speed that allows for control and balance
 - Communicate with other riders that are on the Figure 8 course
10. Instruct students to begin riding the designated course with a Power Start.
11. Allow each student to complete the Figure 8 skill alone.
12. Refer to Differentiating Instruction for suggestions on set up for varying skill levels.



Assessment

1. Assess performance of the Figure 8 skill for each student using the following rubric.

PERFORMANCE RUBRIC: FIGURE 8

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student can maneuver bike around cones without touching them;</p> <p>Student has excellent balance when pedaling through course and never puts foot on the ground;</p> <p>Student can maneuver through course at both fast and slow speeds, under control.</p>	<p>Student can maneuver bike around cones without touching them;</p> <p>Student has good balance when pedaling through course and rarely puts foot on the ground;</p> <p>Student can maneuver through course at medium and slow speeds, under control.</p>	<p>Student can maneuver bike around cones, but touches them or occasionally runs over them;</p> <p>Student often puts foot on the ground;</p> <p>Student can maneuver through course at a faster speed, but not under control;</p> <p>Student knocks over several cones and/or is unable to maneuver around cones when riding slowly.</p>	<p>Student can maneuver bike around cones, but touches them or often runs over them;</p> <p>Student often puts foot on the ground or has to stop and restart; Student can maneuver through course at very slow speeds, but often runs over cones.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, & equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, & equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course.
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Students should ride the course alone.
- Students at this level may be asked to keep their feet on their pedals, trying not to touch the ground.

Intermediate

- Reduce the size of the Figure 8 course to create tighter turns.
- Allow up to 2 riders on the course at one time.

Advanced

- Continue to reduce the size of the Figure 8 course.
- Increase the number of riders on the course at one time.
- Students can be asked to go through the course more slowly, to increase the challenge.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.

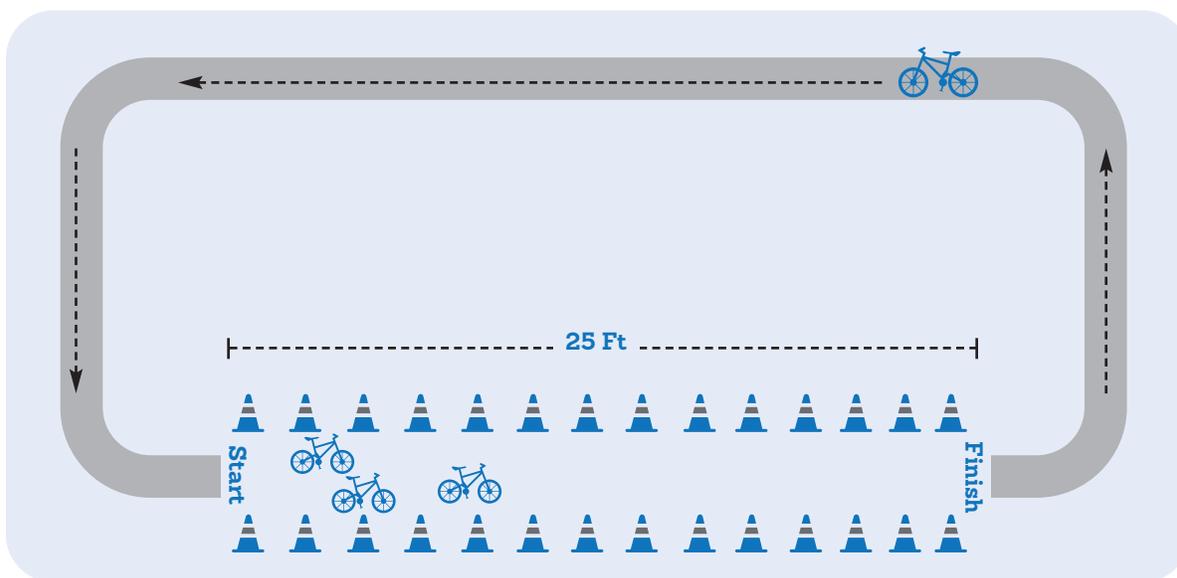


SKILL-BASED ACTIVITY

Snail Race

- Timeframe** **Adapted and Beginner:** N/A
Intermediate: 8-10 minutes
Advanced: 8-10 minutes
- Objectives** At the conclusion of this activity the student will be able to:
1. Demonstrate exceptional or reliable performance of the Snail Race as measured by the Snail Race rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 3
Standard 4
Standard 5
- Equipment**
- Helmets
 - Head barriers
 - Bicycles
 - Bicycle pump
 - Allen wrench
 - Red floor tape
 - Cones, domes, polypspots or chalk to mark riding course
- Teacher Overview** This activity is an advanced activity designed to strengthen the key skill of balance and control of one's bicycle and the ability to ride at a slow speed. Riders start the race together, and the last one across the finish line wins—no weaving or touching the ground is allowed. The purpose of this race is to reward low speed that requires balance skills. This activity is not recommended for beginner or adapted riders.
- Preparation**
1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
 2. Set up a "chute" using cones, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
 3. Use cones, domes, polypspots or chalk to mark the start and finish of the race.

Diagram: Snail Race Course



4. The chute should be wide enough to safely accommodate multiple riders and approximately 25ft long.
5. Practice the Snail Race before demonstrating to students.

Directions

1. Introduce this activity using the following prompt:

You have learned that riding slowly can be challenging and requires a great deal of balance and control of the bicycle. Today, we will be putting those skills to the test with the Snail Race. The goal in the Snail Race is to get to the finish line last, without pedaling and without putting your feet on the ground.



2. Complete the following steps #3-9 if Helmet Fit and ABC Quick Check have not been completed as part of the current day's lesson; otherwise proceed to step #10.
3. Divide students into groups of two or three.
4. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
5. Instruct students to retrieve bicycles according to number assigned.
6. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly, and to provide prompts if an item was missed. Switch roles
7. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
8. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.

9. Explain and demonstrate how to perform the Snail Race to students in the teaching station reinforcing the following points. Riders should:
 - Start with a Power Start, but then no other pedaling
 - Move forward by turning steering left and right with minor movements
 - Not stop during the race
 - Not put a foot on the ground during the race
 - Continue moving forward (not zigzag or side to side)
10. Line students up at the starting line.
11. Explain to students that the challenge is to be the last person to the finish line.
12. Start the race.
13. Identify the winner as the student who crosses the finish line last without putting a foot down.

Assessment

1. Assess performance of the Snail Race for each student using the following rubric

PERFORMANCE RUBRIC: SNAIL RACE

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student has excellent balance when moving and never puts foot on the ground;</p> <p>Student can move forward at very slow speeds, without zigzagging or running into other riders;</p> <p>Student can perform a track stand for up to a few seconds.</p>	<p>Student has good balance when moving and rarely puts foot on the ground;</p> <p>Student can move forward at slow speeds, without zigzagging or running into other riders.</p>	<p>Student has poor balance when moving and sometimes puts foot on the ground;</p> <p>Student can only move forward at medium speeds;</p> <p>Student often zigzags and/or runs into other riders.</p>	<p>Student has poor balance and can only move forward at a medium speed;</p> <p>Student cannot ride in a straight line and often veers from side to side;</p> <p>Student constantly has one foot on the ground.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, & equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, & equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course and demonstrate the skill components in the “chute.”
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Not Recommended

Intermediate

- Allowed to put their foot down for a brief moment if necessary.

Advanced

- Start without using the Power Start
- Perform a Track Stand at some point during the race.



Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.



UNIT 5

Rules of the Road

OBJECTIVES

At the conclusion of this unit the student will be able to:

1. Describe key concept of safe riding, as measured by completion of the *Rules of the Road worksheet*. (Cognitive)
2. Describe key concept of safe riding, as measured by participation in peer discussion about Rules of the Road. (Cognitive)
3. Demonstrate exceptional or reliable performance of Rules of the Road during the Chaos Corners activity as measured by the Rules of the Road rubric. (Psychomotor)
4. Demonstrate exceptional or reliable lane positioning as measured by the lane-positioning rubric. (Psychomotor)
5. Demonstrate exceptional or reliable bicycle etiquette associated with group rides as measured by the bicycle etiquette rubric. (Psychomotor)
6. Demonstrate exceptional or reliable bicycle etiquette associated with bicycle paths/trails as measured by the bicycle paths/trails rubric. (Psychomotor)
7. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
8. List and describe key concepts from Unit 5 that illustrate a clear understanding of the need to know the rules of the road and bicycling etiquette, as measured by providing responses to questions in journals. (Cognitive)
9. Describe how they feel about their ability to ride safely on the road and/or on a multi-use path and their level of enjoyment of bicycling, as measured by providing responses to questions in journals. (Affective)
10. Describe key concepts of bicycling etiquette, as measured by completion of a bicycling etiquette poster. (Cognitive)

The skill-based activities in Units 1-3 create the foundation for safe bicycling. Regardless of students' skill level or previous bicycling knowledge, the skill-based activities in Units 1-3 should be completed before completing the activities in Unit 5.

NATIONAL STANDARDS FOR K-12 PHYSICAL EDUCATION

Standard 1

The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

Standard 2

The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.

Standard 3

The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4

The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5

The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

KEY VOCABULARY/TERMS

Bicycling Etiquette: General rules of conduct by bicyclists that prevent potential injury.

Intersection: A road junction where two or more roads (driveways, sidewalks) either meet or cross. It may or may not be controlled by traffic lights/signs. Most bicycle crashes occur at intersections.

Lane Position/Roadway Position: The physical position of the bicyclists on the roadway or in the lane. Most state laws indicate that a bicyclist should ride as far to the right as is safe, or practicable. A common error among cyclists is to ride too far to the right where they may hit a curb or don't have enough room to maneuver around a hazard. A bicyclist positioned too far to the right is less visible to motorists.

Multi-use Paths: Paths for varying users, i.e. bicyclists, pedestrians, joggers, in-line skaters and those on horseback.

Rules-of-the-Road: Traffic laws, regulations and common-sense riding behavior designed to increase the safety of bicyclists riding in the roadway. Some examples include: riding in the same direction as traffic, obeying all traffic signs and signals.

Verbal and Nonverbal Communication: Types of communication by bicyclists to other bicyclists, pedestrians and motor vehicle drivers to share information. Some examples include: signaling stopping with a hand signal; saying 'passing on left' to a pedestrian when passing; pointing to a pothole to warn another bicyclist about a hazard.

Yielding: Slowing down or stopping to let another person go first. There are general rules about when you must yield the right-of-way. Some examples include: at an intersection without signs or signals, you should yield the right-of-way to any vehicle approaching from the right; at an intersection with stop signs at all corners, you must yield the right-of-way to the first vehicle to come to a complete stop. If two vehicles stop at the same time, the vehicle on the left should yield to the vehicle on the right.

ACTIVITIES

Each unit should include three types of activities: introduction, skill-based with assessments and cool-down/closure. In some cases, more than one activity option is offered for the introduction and closure; choose the appropriate activities that fit into your allotted class time when developing your lesson plans. If class time is too short to allow for all three types of activities, focus your lesson on the skill-based activities.

Introduction: The following activity can be used to introduce this unit of learning.

- Walk & Share

Skill-Based with Assessments: Each skill-based activity is associated with an assessment to measure student knowledge and application of the identified skill. Depending on the amount of class time available and the skill level of students, more than one of the following skill-based activities may be completed during one class.

- Rules of the Road
- Lane Positioning
- Group Riding Etiquette
- Bike Path/Trail Etiquette

Closure: The following activities can be used to conclude this unit of learning. If desired, these activities can be assigned as homework. Choose which best fits the needs of your students and class.

- Journal Writing
- Bicycling Etiquette Poster

EQUIPMENT NEEDED

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polypots or chalk to mark riding course
- Pencils
- Rules of the Road worksheet
- Student journals
- Pin the Bicyclist on the Road worksheets
- Bike Tips for Youth http://www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8024a_YouthTips.pdf
- Cyclist's Eye View video (optional)
- Rules of the Road Crossword Puzzle (optional)
- Poster board, art paper, paper rolls or butcher paper
- Markers

CROSS-CURRICULAR ACTIVITIES

Language Arts

- Etiquette poster
- Journal writing



SKILL-BASED ACTIVITY

Rules of the Road

Timeframe

Beginner: 45 minutes
Intermediate: 35 minutes
Advanced: 25 minutes

Objective

At the conclusion of this activity the student will be able to:

1. Describe key concept of safe riding, as measured by participation in peer discussion about Rules of the Road. (Cognitive)
2. Demonstrate exceptional or reliable performance of Rules of the Road during the Chaos Corners activity as measured by the Rules of the Road rubric. (Psychomotor)
3. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards

Standard 2
Standard 3
Standard 4

Equipment

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polypots or chalk to mark riding course
- *Bike Tips for Youth* handout (optional)
www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8024a_YouthTips.pdf

Teacher Overview

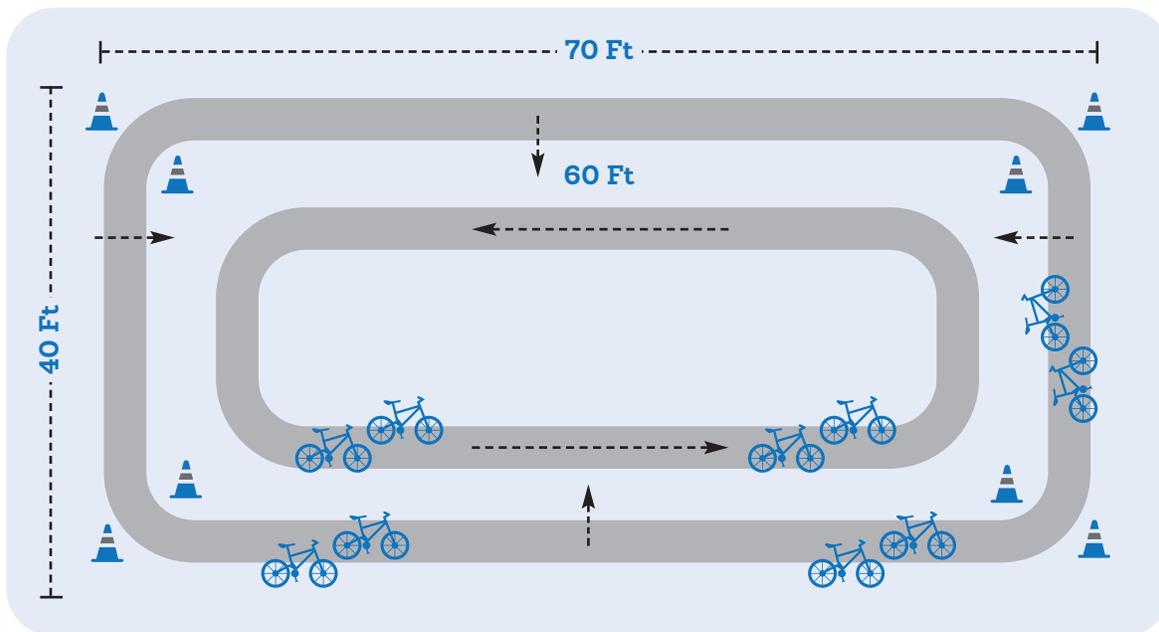
This activity provides further discussion about Rules of the Road for bicycles. The Chaos corner course and activity is used to enable students to apply rules of the road while on their bicycles. The riding portion of this activity supports why these rules are important to have and follow.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a Chaos Corners course, using cones, chalk or field paint, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students and where students will return when instructed.
3. Mark out a large rectangle approximately 70'x40'.

4. Practice the Rules of the Road activity on the Chaos Corners course before demonstrating to students.
5. Identify the bicycle laws specific to your state or local jurisdiction.
6. Make appropriate number of copies of *Bike Tips for Youth* handout (optional).

Diagram: Rules of the Road Course



Directions

1. Introduce this activity using the following prompt:
Today, we will be learning more about the Rules of the Road for bicyclists and why it is important to follow them.
2. Use the following sample questions to prompt students' thinking about the content in this activity. All questions are **True or False**

Q: A bicycle is a vehicle when it is on the road.

A: True: Any time you ride a bicycle on the road, your bicycle is considered a vehicle (and you are considered the driver of a vehicle). As a vehicle, you have the same rights and the same responsibilities as motorists. This class will be your first driver education class and we will discuss safe bicycle driving skills. Although bicyclists have the same rights as a vehicle when on the road, it is important to remember that in a crash, the bicyclist is more likely to be injured than the motorist. Therefore, as a bicyclist, it's important to always look out for the other guy; it's always better to be safe than sorry. When a bicyclist dismounts and walks, he/she is considered a pedestrian and must follow the rules of a pedestrian.

Q: I should obey traffic lights when riding my bicycle on the road.

A: True: Because a bicycle is a vehicle, you must obey all traffic signs and signals. This means that when there is a stop sign or red light, the bicyclist must come to a complete stop and should place one foot on the ground. The bicyclist should not proceed until he has looked left-right-left for traffic and there is no traffic or it is your turn to safely go. This is a skill you should have learned as a pedestrian and it applies as a bicyclist and motorist.

Q: I should ride my bicycle facing traffic.

A: False: Because a bicycle is a vehicle, you must ride on the right side of the road in the same direction as traffic. This is safer than riding facing traffic because you can act like a vehicle and your actions are more predictable.

Q: I can keep riding my bicycle when I hear a siren from an emergency vehicle.

A: False: Because a bicycle is a vehicle, when you hear a siren from an emergency vehicle (e.g., police, fire, emergency), you must pull over to the side of the road on the right and stop to allow the emergency vehicle to pass safely.

Q: While bicycling, I should always hand-signal turns or stops.

A: True: Because a bicycle is a vehicle, you must signal your intention to turn or stop by using hand signals. Because bicycles do not have brake lights, it is important to signal your intentions of slowing down or stopping. This is especially important if you are riding with a group of bicyclists. The left hand is safest to perform these signals for a number of reasons:

- The right hand controls the rear brake and allows a rider to signal and apply the brakes, without the danger of being thrown over the handlebars.
- Motor vehicle drivers may not recognize or expect to see turn signals being made with the right hand.

Q: I only need to look straight ahead when riding my bicycle.

A: False: It is critical to always know what is going on around you, in all directions, when riding a bicycle. Because bicycles do not have rear view and side view mirrors to see what is going on (unless they are purchased and worn by the bicyclist), it is important for the bicyclist to scan in front, to the right, to the left and to the back. The skill of scanning is also used to safely change lanes. We will practice how to safely scan in all directions while riding a bicycle in another lesson.

Q: I should always ride as fast as I can when I am riding my bicycle on the road.

A: False: Vehicles should obey posted speed limits because these are the speeds at which a driver can control a vehicle on a particular road and allow for safe stopping. A bicyclist should always maintain a controlled speed. This is important because it enables a rider to maintain control of the bicycle and safely stop. It actually requires more skill to ride a bicycle very slowly.

Q: I should have a light on my bicycle if I am riding at night.

A: True: Riding a bicycle at night can be very dangerous and is discouraged. The biggest danger is not being seen by other vehicles. Vehicles are required to have headlights and taillights to help with visibility. This is true for bicycles as well. When riding at night, a bicycle should have a battery-powered headlight and a red rear reflector, in addition to normal reflectors. (Each state may have different laws as to what types of lights are required on bicycles when ridden at night.)



3. Complete the Helmet Fit and ABC Quick Check (#4-10) if have not been completed as part of the current day's lesson; otherwise proceed to (#11.)
4. Divide students into groups of two or three.
5. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
6. Instruct students to retrieve bicycles according to number assigned.
7. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly and to provide prompts if an item was missed. Switch roles.
8. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
9. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.
10. Explain and demonstrate skills to students on the Chaos Corners course reinforcing the following points. Riders should:
 - Ride inside the rectangle area anywhere they would like.
 - Stay inside the boundaries and not run into anyone else, and
 - Ride continuously.
11. Line students up in pairs, with their bicycles outside of the large rectangle.
12. Add students into the rectangle by twos every five seconds.
13. Allow students to ride for five minutes.
14. Move cones in 10 feet from one of the rectangle's shorter sides to make the riding area smaller, so it is now 40' x 60'.
15. Allow students to ride for 2-3 more minutes.
16. Move cones in again.
17. Continue until area is slightly congested for riding, but students are still able to maneuver safely. This will depend on the size of the class.
18. Typically, as the area becomes smaller, students will begin to ride in a circle without any communication.
19. After three minutes, conclude activity and debrief with students by asking the following questions.

Q: What happened when everyone first started riding and the area was large?

A: Any of the following:

 - Plenty of room to move around
 - Could ride wherever
 - Other answers may be accepted.

Q: What happened when the area got smaller?

A: Any of the following:

- Harder to ride where you wanted
- Needed to communicate more
- Got nervous
- Other answers may be accepted.

Q: Why did everyone start riding in the same direction?

A: Any of the following:

- Because it felt safer
- To become predictable
- Other answers may be accepted.

Q: How does what happened in Chaos Corners apply to riding with traffic?

A: Any of the following:

- It is safer to be predictable
- Had a better idea of what other riders/drivers would do
- Other answers may be accepted.

20. Prepare and provide copies of Bike Tips for Youth handout(s) for take home. (optional)
http://www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8024a_YouthTips.pdf

Assessment

1. All students should participate in group discussion about Rules of the Road conversation.
2. Assess performance of Rules of the Road activity on the Chaos Corners course of each student using the following rubric:

PERFORMANCE RUBRIC: RULES OF THE ROAD

Exceptional	Reliable	Inconsistent	Struggling/ Survival
Student is committed to riding safely during activity; Student reliably maintains a safe speed and distance, without reminders from the teacher.	Student is committed to riding safely during activity; Student maintains a safe speed and distance during activity, but may need a reminder/prompt from teacher	Student is somewhat committed to safe riding, particularly when a teacher prompts appropriate riding behavior; Student will maintain a safe speed and distance during the activity, with reminders and supervision.	Student is unable to participate in the activity due to unsafe behavior; Student lacks control of his bike and balance, so that riding in this activity is unsafe for all involved.

3. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course.
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Consider having students walk through this activity, instead of riding bicycles, for safety reasons.

Intermediate and Advanced

- Progression to a smaller sized area can occur more quickly.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between bicyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.



SKILL-BASED ACTIVITY

Traffic Signs

Timeframe

Adapted/Beginner: 30 minutes

Intermediate: 30-60 minutes

Advanced: 20-50 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Understand the meaning of key traffic signs. (Cognitive)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

Equipment

- Road sign cards
- Road sign definition cards

Instructors may download the resources above by visiting <http://www.saferoutesnj.org/resources/education/> and clicking on "Traffic Signs Game"

Teacher Overview

This activity teaches students how to recognize and interpret standard traffic signs. Students will learn that signs that apply to motorists can apply to cyclists as well.

Preparation

1. Each child should be given a road sign card or a road sign definition card. If there are more cards than students participating in the exercise, children can be given multiple cards.
2. Instruct students to interact with the rest of the group to match each road sign card with its corresponding road sign definition card.
3. After the students have paired each set of cards, make sure that the matching has been done correctly and review each sign and its definition with the group.

Traffic Sign Definitions



Stop, scan left-right-left for crossing traffic, and yield the right of way.



People working/ construction ahead. Slow down and use caution.



Slow down, scan for cross traffic, yield the right of way and stop if it is not clear.



Intersection ahead.



This is a one way road: do not go against the direction of traffic.



Traffic is merging into your lane from the right.



Road divides, stay to the right of the divide.



One way road. Do not go against the direction of this arrow.



This lane is only for turning left.



Right lane ends; move into the next lane on your left.



Right turn not allowed.



School zone ahead. Slow down and use caution. Pedestrians have the right of way.



Railroad tracks ahead. Slow down and scan for trains.



Two-way road ahead. Stay on the right side, and go in the same direction as other traffic going in your direction.



Sharp left curve (not turn) ahead.



Indicates a preferred on-street route for bicyclists.



Clarifies that bicyclists are entitled to occupy the entire travel lane. Motorists must change lanes to pass.



SKILL-BASED ACTIVITY

Lane Positioning

Timeframe

Adapted/Beginner: 30 minutes

Intermediate: 30-60 minutes

Advanced: 20-50 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable lane positioning as measured by the lane positioning rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards

Standard 1

Standard 2

Standard 3

Standard 4

Equipment

- Helmets
- Head barriers
- Bicycles
- Bicycle pump
- Allen wrench
- Red floor tape
- Cones, domes, polypots or chalk to mark riding course
- *Pin the Bicyclist on the Road* worksheets
- Pencils
- Two-way radios or cell phones

Teacher Overview

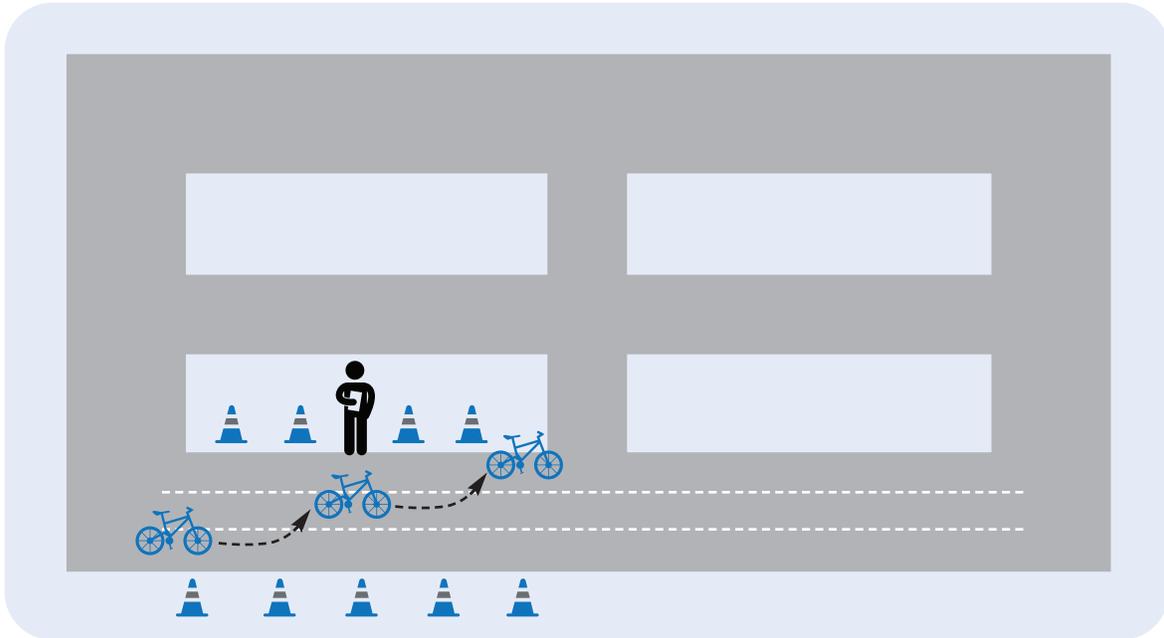
This activity teaches proper lane positioning when riding in the road and through intersections. Proper lane positioning is an important safety behavior. This activity provides lane positioning practice through the use of mock intersections. However, there is an option to provide lane positioning practice using an actual intersection in the surrounding area. This option is not recommended for beginner or adapted riders.

Preparation

1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
2. Set up a lane positioning course and intersection course, using cones, chalk or field paint, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students, and where students will return when instructed.
3. Mark out a large rectangle approximately 70'x40' with 3 riding lanes approximately 12' each.

- Using the Lane Positioning Course or another location mark out a large rectangle with an inside cross approximately 70'x40' with 3 riding lanes approximately 12' each.

Lane Positioning Course



- Practice the lane positioning skill before demonstrating to students.
- Make appropriate number of copies of *Place the Bicyclist on the Road* worksheets.
- If using *Cyclist's Eye View* video, preselect which scenes from the video are appropriate to show to students depending on which situations they are likely to encounter in their community. (optional)
- If using real intersections to practice lane positioning, pre-determine a route for students to ride that includes at least 2 left turns, 2 right turns, a 2-way intersection and a 4-way intersection. (optional)
- If using real intersections to practice lane positioning, try to secure other adult riders to participate in the activity to maximize the safety of students. (optional)
- Distribute method of communication (i.e., two-way radios, cell phones) to be used among all adults on the ride and with the main office in case of emergency.
- Ride the course the day before taking students on the course to ensure rideability. (optional)

Directions

1. Introduce this activity using the following prompt:

Proper lane positioning is a very important element of safe riding. When you are in the proper part of the lane you tend to be predictable to other bicyclists and motor vehicles. Proper lane positioning also helps to set a rider up for proceeding correctly through an intersection. While determining proper lane positioning, bicyclists must also learn to negotiate intersections safely by stopping, scanning for traffic, being seen and signaling if necessary.

2. Use the three (3) different *Place the Bicyclist on the Road* worksheets to help students visualize proper lane positioning.
3. Explain to students that there are three positions that a bicyclist can be in while riding in a lane: left third, center third and right third. A bicyclist should be in the right-most lane that goes in the direction of travel.
4. Instruct students to complete each of the *Place the Bicyclist on the Road* worksheets following the directions on each worksheet. This can be done individually, in small groups or as a large group.
5. Review the correct responses as a group.
6. Complete the Helmet Fit and ABC Quick Check (#7-13), if not already completed, as part of the current day's lesson; otherwise proceed to (#14.)
7. Divide students into groups of two or three.
8. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
9. Instruct students to retrieve bicycles according to number assigned.
10. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly, and to provide prompts if an item was missed. Switch roles.
11. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
12. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.
13. Explain and demonstrate skills to students on the lane positioning course reinforcing the following points. Riders should:
 - Ride in the right third of the lane for three minutes.
 - Practice changing lane positioning in the straight riding course.
 - Move from the right third to the middle third to the left third.
 - Change lanes properly following three steps: Scan, Signal and Move.
 - Complete these steps BEFORE crossing the dashed line into the next third of the lane.



14. Explain and demonstrate skills to students on the intersection course reinforcing the following points. Riders should:
 - Practice right-hand turns by turning from the right third of the lane into the right third of the lane.
 - Practice going straight from a shared-use lane by moving to the middle of the lane, proceeding through the intersection and after crossing the intersection, moving to the right third of the lane.
 - Practice left-hand turns in a left-hand turn only lane by being in the right third of the turn lane.
 - Practice left-hand turns in a shared-use lane by turning from the left third of the lane into the right third of the lane.
15. Allow students to practice different situations at intersections by allowing them to ride continuously for 5-7 minutes.
16. Encourage students to vary their route by choosing to turn left, right or go straight and yielding to other bicyclists at the intersections.
17. If opting to have students practice using actual intersections, explain the skills that students will complete on the ride reinforcing the following points. Riders should:
 - Practice right-hand turns by turning from the right third of the lane into the right third of the lane.
 - Practice going straight from a shared-use lane by moving to the middle of the lane, proceeding through the intersection and after crossing the intersection, moving to the right third of the lane.
 - Practice left-hand turns in a left-hand turn only lane by being in the right third of the turn lane.
 - Practice left-hand turns in a shared-use lane by turning from the left third of the lane into the right third of the lane.



All vehicles must follow right-of-way rules to safely cross intersections. Right-of-way helps you decide who goes first at an intersection.

- Base Rule: **First to Stop = First to Go.**
 - The first vehicle at the intersection goes through the intersection first.
- If base rule doesn't apply: **Farthest Right Goes First.**
- When two vehicles get to the intersection at the same time, the vehicle on the right goes first; it has the right-of-way.
- **When in Doubt, Bail Out.** This trumps all rules.
 - Even if you have the right-of-way, if for any reason you feel uncomfortable or that your safety is threatened, let the other traffic go ahead. Your safety always comes first.
- If neither the base rule nor furthest right rule apply: **Straight Traffic Goes First.**
- When two vehicles are directly across from each other and one is turning left, the one that is going straight goes first. For a designed copy of this handout, see: www.nhtsa.gov/Driving+Safety/Bicycles/RightOfWay

Assessment

1. Assess performance of lane positioning of each student using the following rubric.

PERFORMANCE RUBRIC: LANE POSITIONING

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student reliably and consistently obeys traffic laws and uses correct signals in all traffic situations;</p> <p>Student always positions herself in the right 1/3 of the lane, even after a turn;</p> <p>Student correctly scans, signals, and then moves when changing lanes;</p> <p>Student reliably has the correct positioning for a left-hand turn.</p>	<p>Student demonstrates the ability to obey traffic laws, but may not use it all the time;</p> <p>Student can use correct signals in all traffic situations, but may not signal each time;</p> <p>Student typically positions herself in the right 1/3 of the lane, even after a turn;</p> <p>Student can correctly scan, signal, and then move when changing lane, but she may forget a step;</p> <p>Student reliably has the correct positioning for a left-hand turn.</p>	<p>Student may not know or remember all traffic laws, and may not follow them at all times, without teacher prompts;</p> <p>Student may have difficulty remembering which signal to use and/or does not consistently use a hand signal;</p> <p>Student does not yet have the ability to scan without weaving, so changing lanes is very difficult;</p> <p>Student does not position herself in a lane correctly.</p>	<p>Student does not know and/or remember the majority of traffic laws that are important to cycling;</p> <p>Student is not able to signal (not able to ride with one hand) and therefore does not signal;</p> <p>Student does not correctly position herself in the lane and cannot scan over her shoulder.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course.
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Students can walk through the skills before performing them on a bicycle.

Intermediate and Advanced

- Activities can be performed in a neighborhood close to the school to simulate real-world experiences.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.

PLACE THE BICYCLIST ON THE ROAD



Student _____ Date _____

Background

The following activity refers to where the bicyclist should be within a lane based on the desired action. This requires you to imagine in your mind a single lane divided into three parts.

Directions

1. Place the bicyclist in the proper part of the lane based on each of the different situations: Use A for situation A, making a right turn at the intersection; Use B for situation B, making a left turn at the intersection; and Use C for situation C, going straight.

2. Place the associated letters where the bicyclist should be positioned when: entering the intersection and exiting the intersection.

Note: The arrows indicate the direction of travel.

<p>A. Making a right turn</p> <p>B. Making a left turn</p> <p>C. Proceeding straight</p>		
<hr/> <hr/>		<hr/> <hr/>

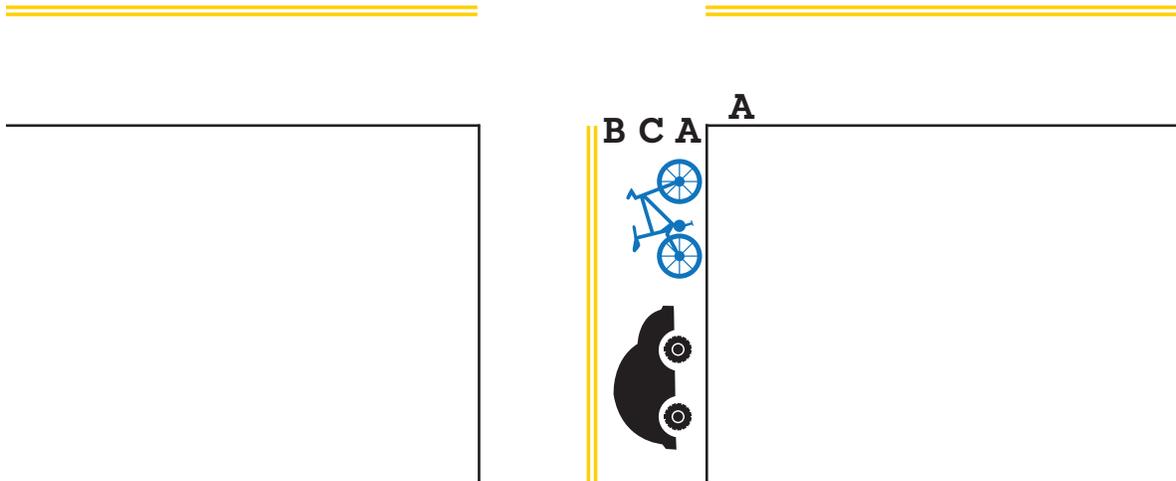
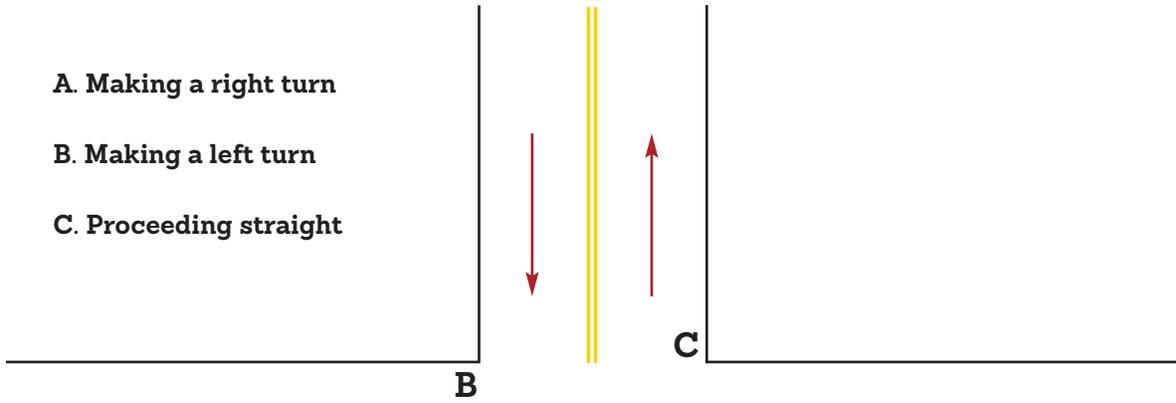
PLACE THE BICYCLIST ON THE ROAD

ANSWER KEY

A. Making a right turn

B. Making a left turn

C. Proceeding straight



PLACE THE BICYCLIST ON THE ROAD

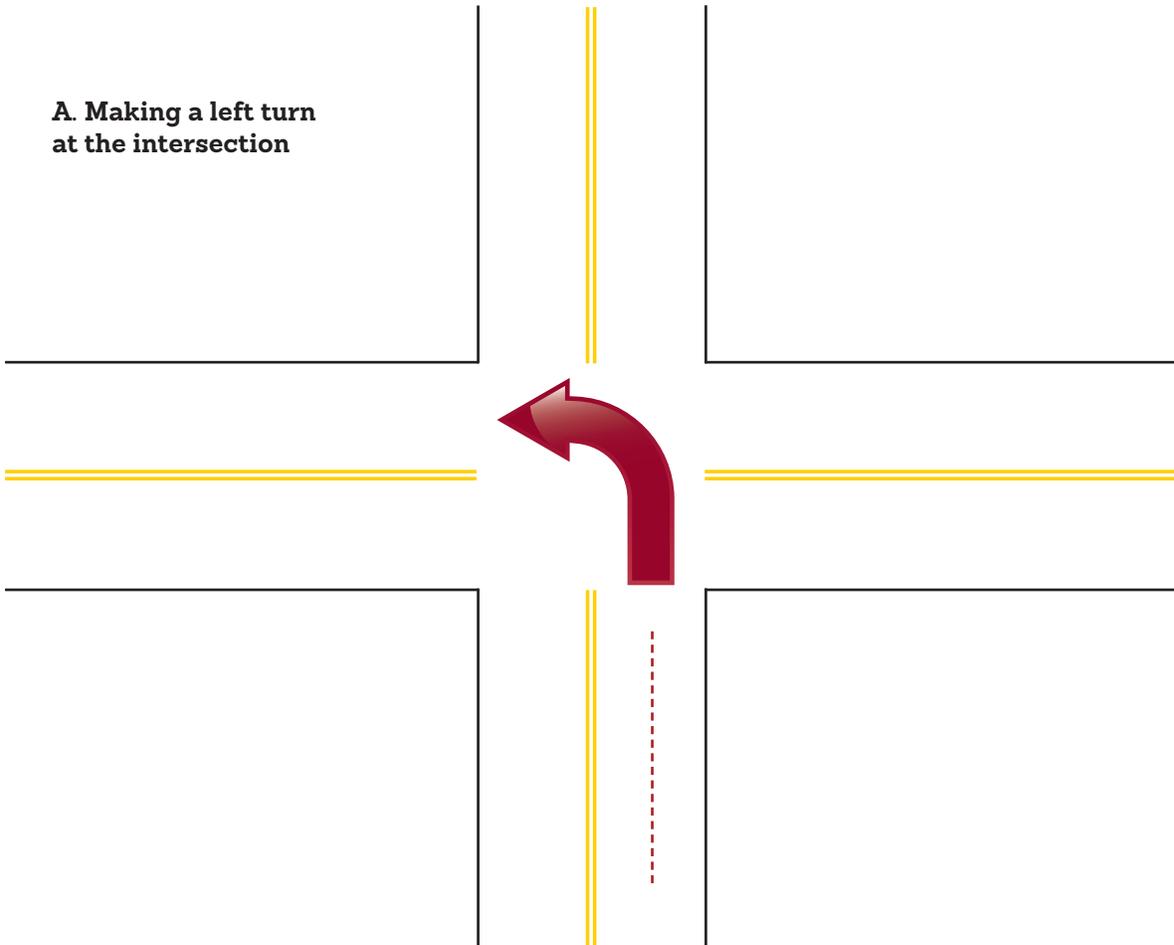


Student _____ Date _____

Directions

Place an A at the position a bicyclist would be if he/she was making a left turn and there was a designated left turn lane?

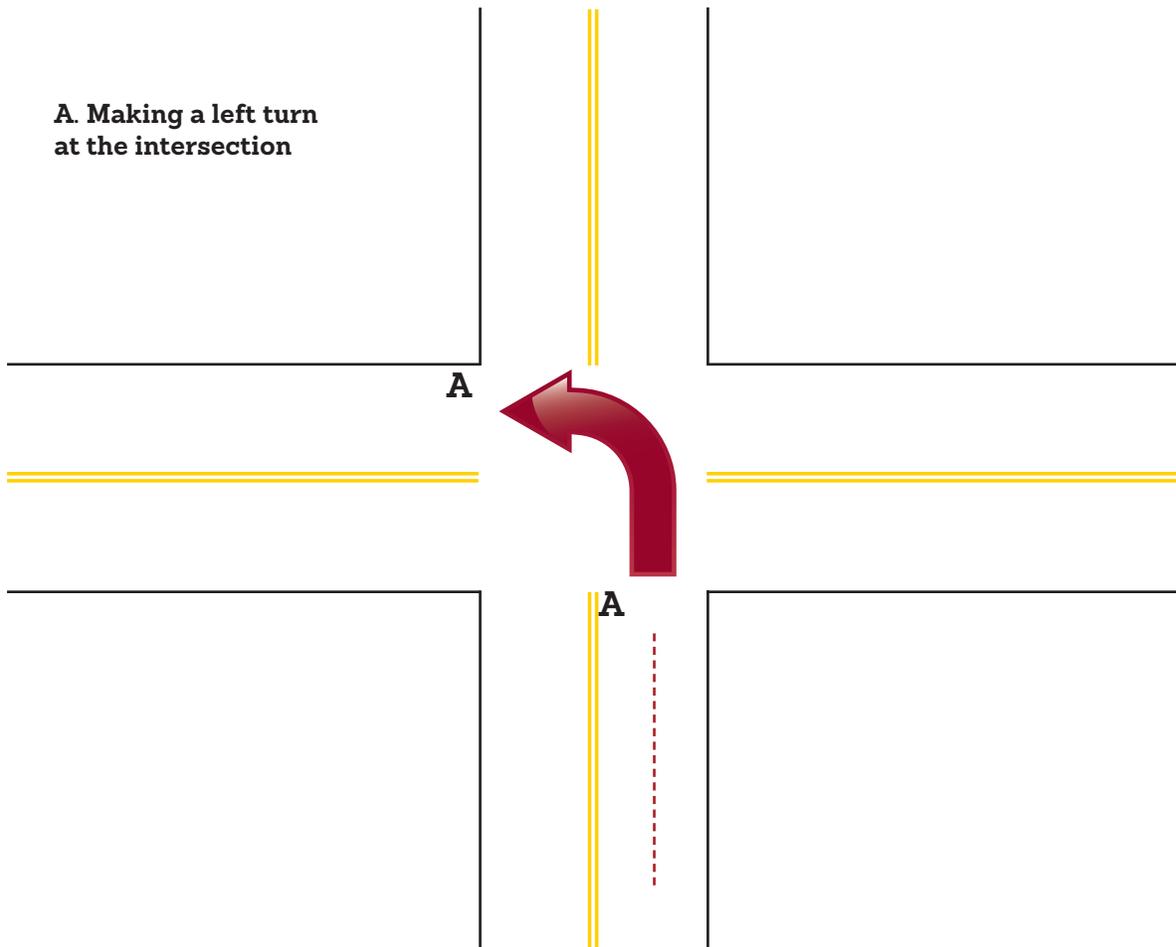
**A. Making a left turn
at the intersection**



PLACE THE BICYCLIST ON THE ROAD

ANSWER KEY

A. Making a left turn at the intersection



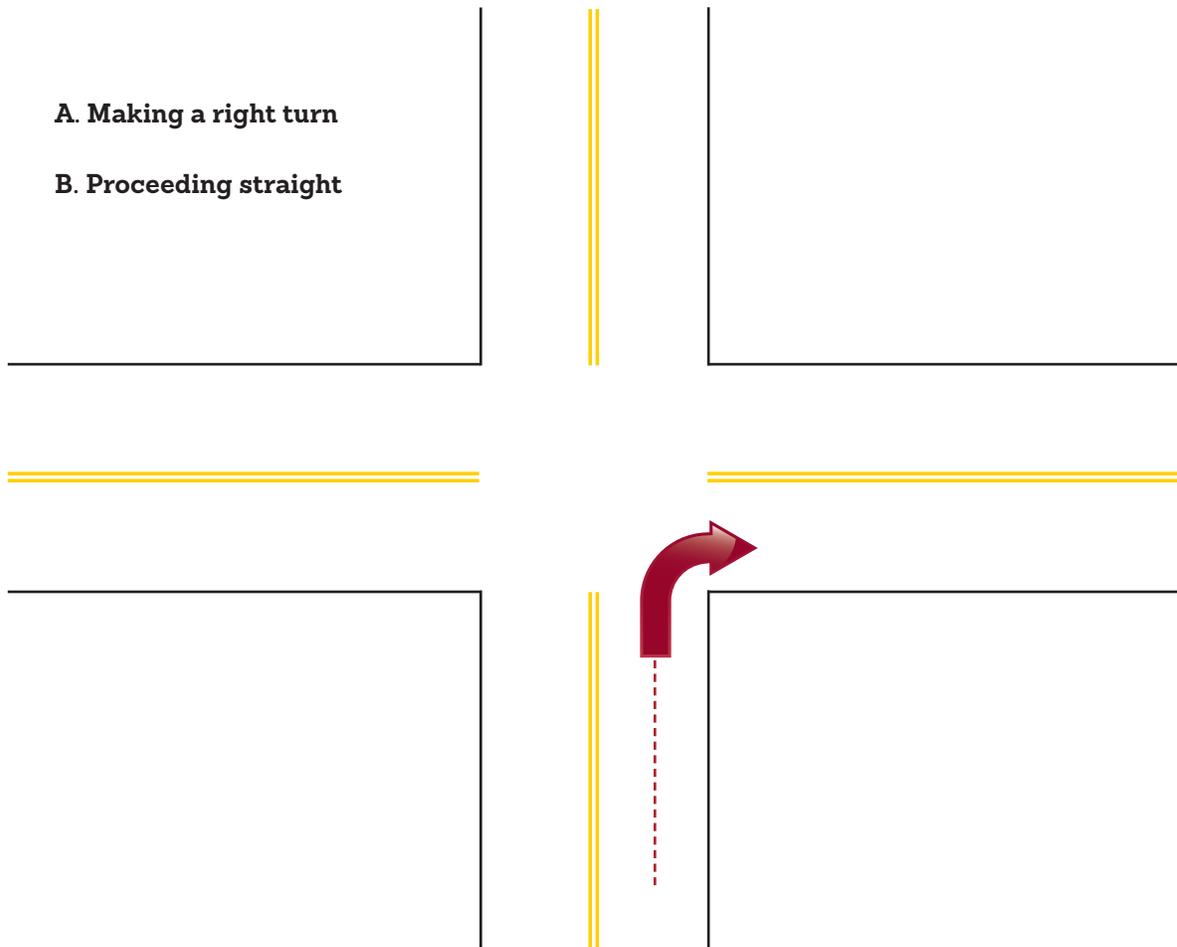
PLACE THE BICYCLIST ON THE ROAD



Student _____ Date _____

Directions

1. Place an A at the position a bicyclist would be if he/she were making a right turn, and there was a designated right turn lane.
2. Place a B at the position a bicyclist would be if he/she were proceeding straight, and there was a designated right turn lane.

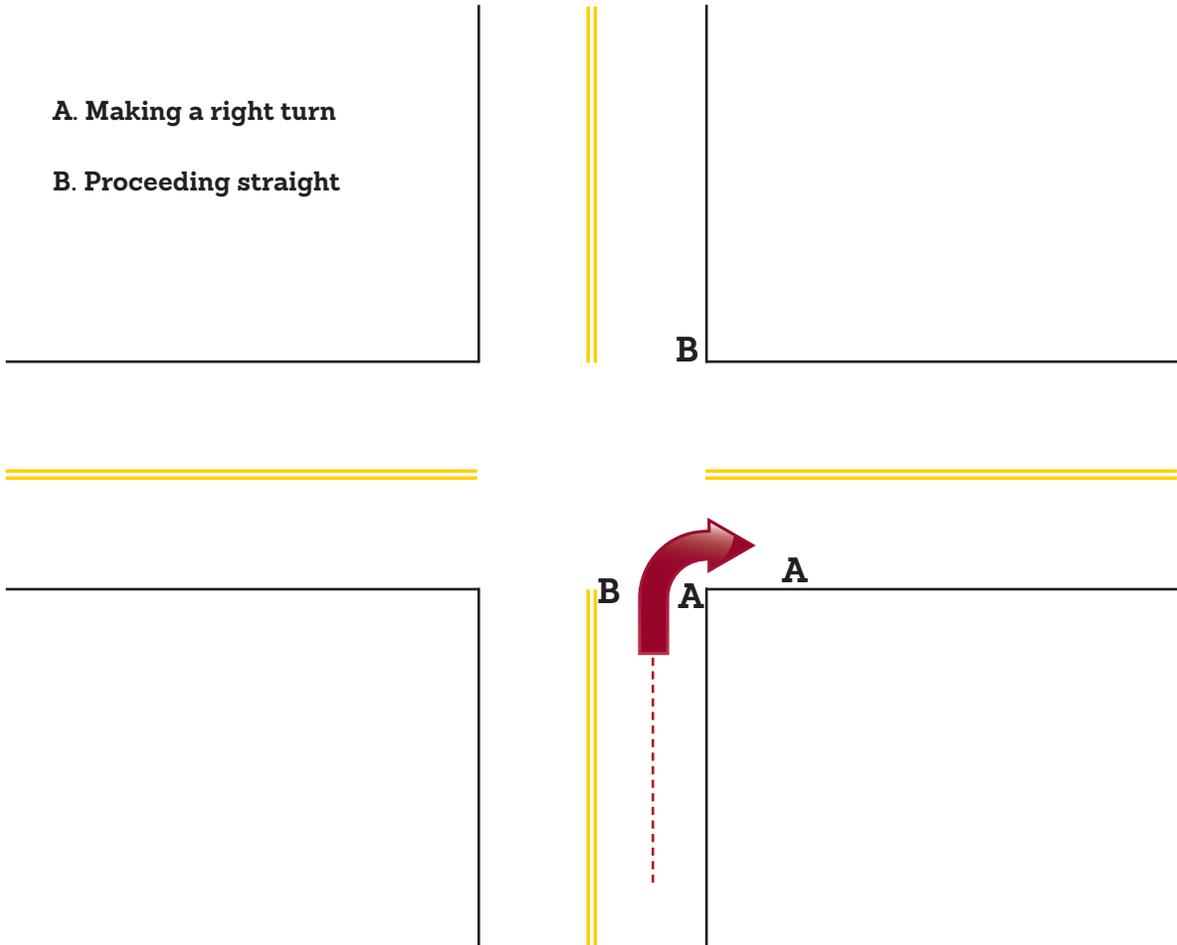


PLACE THE BICYCLIST ON THE ROAD

ANSWER KEY

A. Making a right turn

B. Proceeding straight





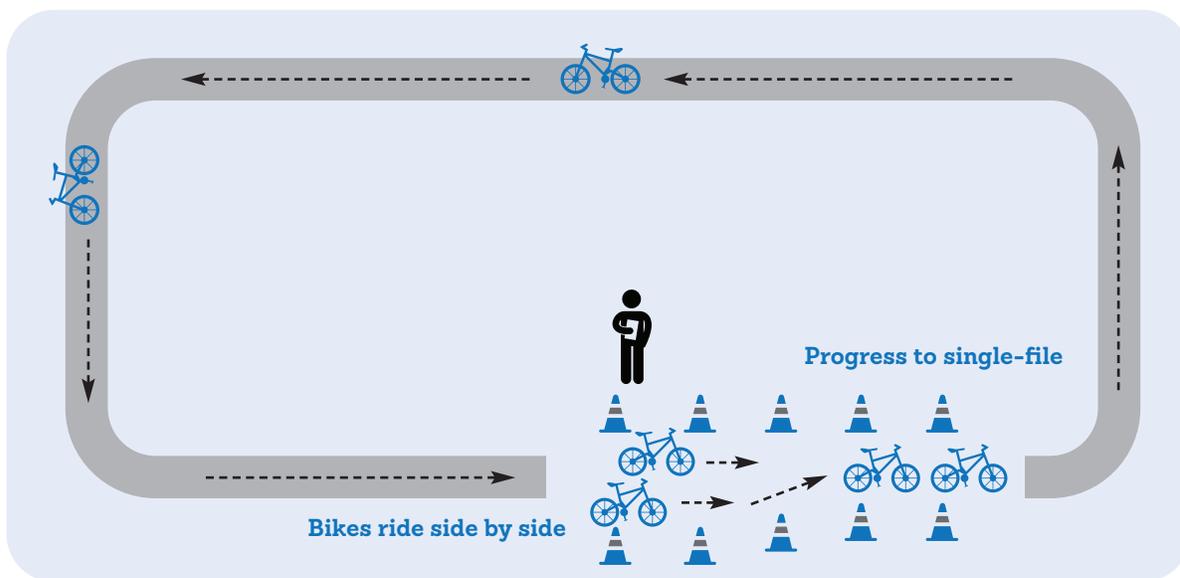
SKILL-BASED ACTIVITY

Group Riding Etiquette

- Timeframe** **Adapted and Beginner:** N/A
Intermediate: 20-30 minutes
Advanced: 15-20 minutes
- Objectives** At the conclusion of this activity, the student will be able to:
1. Demonstrate exceptional or reliable bicycle etiquette associated with group rides as measured by the bicycle etiquette rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 3
Standard 4
- Equipment**
- Helmets
 - Head barriers
 - Bicycles
 - Bicycle pump
 - Allen wrench
 - Red floor tape
 - Cones, domes, polyspots or chalk to mark riding course
 - *Bike Safety: Tips for Youth* handout
www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8024a_YouthTips.pdf
 - *Communication & Cycling* worksheet (optional)
 - Pencils (optional)
- Teacher Overview** This activity teaches and/or strengthens bicycling etiquette that is especially important when riding in a group setting. There are two courses within this activity to reinforce cycling etiquette skills.
- Preparation**
1. Designate a riding course that enables the teacher to see the students at all times. This will enable students to ride throughout the class period, even when they are not performing skills.
 2. Set up a riding course, using cones, chalk or field paint, to indicate where the student will perform the skill and the teacher will conduct the assessment. This area should also serve as a teaching station in which the skill will be demonstrated for the students and where students will return when instructed.

3. Lay out the **Who Goes First?** course based on the associated diagram.

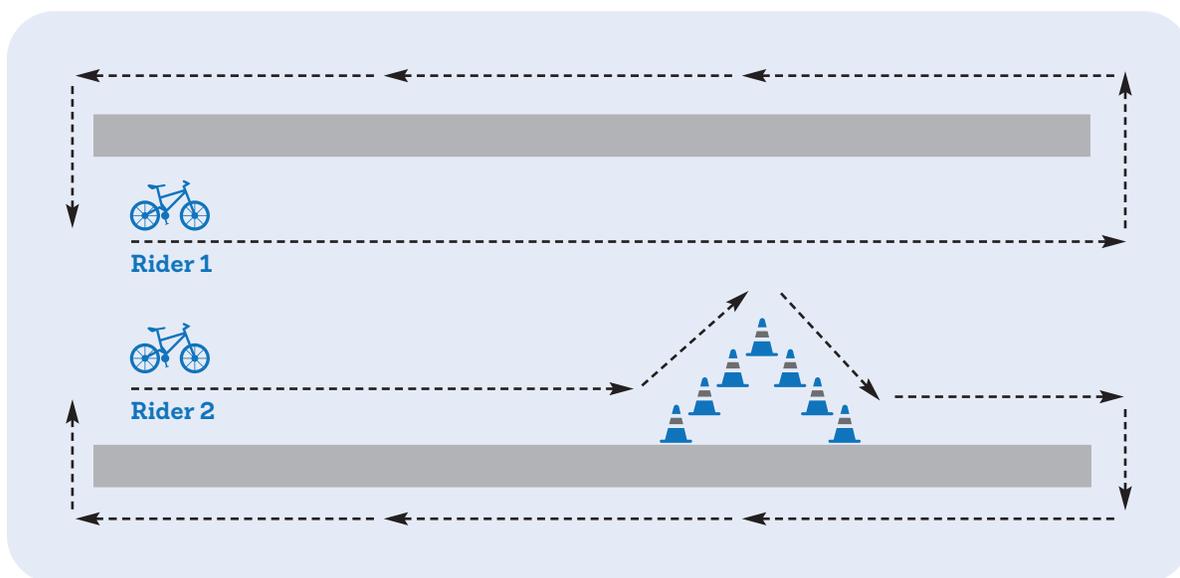
Diagram: Who Goes First?



4. Layout the *Squeeze Box* course based on the associated diagram, preferably in the middle of the riding course. Students will complete the *Squeeze Box* course after completing *Who Goes First?* If space allows, set up both courses at the same time; if space does not allow for both courses to be set up at the same time, make sure all materials for the *Squeeze Box* course are ready to go when the *Who Goes First?* course is completed by all students.

Note: Riders ride side by side and must communicate who goes first when they encounter the obstacle.

Diagram: Squeeze Box Course



5. Practice the *Who Goes First?* and *Squeeze Box* courses before demonstrating to students.
6. Make appropriate number of copies of *Bike Safety: Tips for Youth* handout
7. Make appropriate number of copies of *Communication & Cycling* worksheet (optional)

Directions

1. Introduce this activity using the following prompt:

We have talked a lot about the importance of having rules to follow when riding and communicating with other riders. Today, we are going to practice combining this information with the actual skills to continue to make you a safer rider when you ride with a partner and in groups.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: You are riding with a group of other bicyclists in single-file and you approach a stop sign. How would you signal to each bicyclist in the line that you were slowing down and stopping?

A: Both nonverbal and verbal signals are necessary. You could call out 'slowing' and/or 'stopping' AND also use the stop hand signal.

Q: You are riding side by side with a friend and you needed to get into single-file, because up ahead there wasn't enough room to continue to ride side by side. How would you determine who should go where?

A: Communicating who was going first and who was dropping behind.

Q: Considering everything we have learned to date, what skills and behaviors might be important with regard to cycling etiquette?

A: Distribute and review *Bike Safety: Tips for Youth* handout.
http://www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8024a_YouthTips.pdf



3. Complete the Helmet Fit and ABC Quick Check (#4-10) if they have not been completed as part of the current day's lesson; otherwise proceed to (#11.)

4. Divide students into groups of two or three.
5. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
6. Instruct students to retrieve bicycles according to number assigned.
7. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly, and to provide prompts if an item was missed. Switch roles.
8. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
9. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.

10. Conduct the **Who Goes First** activity
 - Explain and demonstrate skills to students on the Who Goes First? course, reinforcing the following points. Riders should:
 - Ride side by side until they encounter an obstacle.
 - Communicate by saying, 'You go first' to indicate who goes first and second around the obstacle.
 - Make the decision about who goes first right when they encounter the obstacle, instead of before, to make the activity more realistic.
 - Ride back to the beginning on the outside of the station after completing the course.
 - Switch sides – whoever was riding on the left is now on the right when they ride through the course a second time.
 - Another option for this activity is for students to ride side by side. When the teacher signals they must decide who goes first. This option would not have an obstacle, but would encourage more impromptu decision-making. The teacher could signal again to have students return to side by side riding.
 - Divide students in pairs or in a group of three if necessary.
 - Instruct students that those who are not participating in the activity can ride around the outside of the skill practice area to increase fitness until it is their turn.

11. Set up the *Squeeze Box* activity course if you have not already done so, due to limited space.

12. Conduct the **Squeeze Box** activity
 - Instruct students to gather at the teaching station.
 - Explain and demonstrate skills to students on the Who Goes First? activity course, reinforcing the following points. Riders should:
 - Start and end as a group.
 - Stay within the boundaries of the activity course.
 - Stay within the lines.
 - Communicate with fellow riders to determine who will go ahead, who will go right or left, who will ride behind and when to finish.

13. Divide students into groups of three or four. Group size can increase to five or six with more advanced riders.

14. Start group at the starting line, shoulder to shoulder.

15. Instruct students to evaluate their performance using the *Communication & Cycling* worksheet (optional).

Assessment

1. Assess performance of group riding etiquette of each student using the following rubric.

PERFORMANCE RUBRIC: GROUP RIDING ETIQUETTE

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student consistently verbally and nonverbally communicates his intentions with other riders;</p> <p>Student knows when to speed up or slowdown in order to maneuver safely, and allow other riders to maneuver safely;</p> <p>Student is conscientious of other riders' safety as well as his own.</p>	<p>Student verbally and/or nonverbally communicates his intentions with other riders, but may not do both all the time;</p> <p>Most of the time the student is able to determine when to speed up or slowdown in order to maneuver safely, or to allow other riders to maneuver safely, but is not completely consistent and may require prompting by the teacher and/or other students;</p> <p>Student is conscientious of other riders' safety as well as his own.</p>	<p>Student can communicate his intentions either verbally or nonverbally (typically not both at the same time), but this may not be on a consistent basis;</p> <p>Student has difficulty determining when to speed up or slowdown in order to maneuver safely, or to allow other riders to maneuver safely, and needs significant help from teacher and/or other students;</p> <p>Student is too focused on his own riding to be conscientious of other riders' safety.</p>	<p>Student is unable to participate in the activity due to unsafe riding behavior:</p> <p>Student is unable to signal;</p> <p>Student is unable to gauge his own speed and position, relative to that of others, to ride in this activity in a safe manner.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course.
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Not recommended

Intermediate

- Fewer students can be in one group during the *Squeeze Box* activity if necessary.

Advanced

- More students can be in one group during each activity.
- Courses can be made slightly narrower or more lines added.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.



SKILL-BASED ACTIVITY

Bike Path / Trail Group Ride

- Timeframe** **Beginner:** N/A
Intermediate and Advanced: 30 minutes
- Objectives** At the conclusion of this activity, the student will be able to:
1. Demonstrate exceptional or reliable bicycle etiquette associated with bicycle paths/trails as measured by the bicycle paths/trails rubric. (Psychomotor)
 2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 3
Standard 4
- Equipment**
- Helmets
 - Head barriers
 - Bicycles
 - Bicycle pump
 - Allen wrench
 - Cones, domes, polypots or chalk to mark riding course
 - Two-way radios or cell phones
 - *Bike Safety: Tips for Youth* handout
www.nhtsa.gov/staticfiles/nti/bicycles/pdf/8024a_YouthTips.pdf
- Teacher Overview** This activity teaches and/or strengthens bicycling etiquette that is especially important when riding on bicycle paths and/or trails. One of the challenges with riding on bicycle paths and/or trails is that there are no rules as there are when riding on roads. So it is especially important to practice bicycling etiquette. This activity will be conducted on a bicycle path or multi-use path. It is best to have additional adults accompany students on the ride to ensure the safety of students. This activity is not recommended for beginner or adapted riders.
- Preparation**
1. Designate a riding course for the ABC Quick Check that enables the teacher to see the students at all times.
 2. Determine route that will be ridden.
 3. Secure other adult riders to participate in the activity to better ensure the safety of students.
 4. Determine checkpoint locations at which all students will stop to discuss portions of the ride.

5. Distribute method of communication (i.e., two-way radios, cell phones) to be used among all adults on the ride and with the main office in case of emergency.
6. Ride the course the day before taking students on the course to ensure rideability.
7. Make appropriate number of copies of *Bike Safety: Tips for Youth* handout.

Directions

Introduce this activity using the following prompt:

You will need to use all of the skills and information that you have learned in previous units. One of the most important things that you will need to remember is to communicate with other riders and people that you encounter on the path.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: What kinds of things might you encounter when riding on a bicycle path/trail?

A: Any of the following:

- People walking/ jogging
- Children
- Dogs
- Other bicyclists
- Other responses may be accepted

Q: What are the positives of riding on a path?

A: Any of the following:

- No cars
- Varied terrain
- Other responses may be accepted

Q: What are the challenges?

A: Any of the following:

- Few rules if any
- People aren't paying attention as much as on the road
- Other responses may be accepted

3. Complete the Helmet Fit and ABC Quick Check (#4-10), if not already completed, as part of the current day's lesson; otherwise proceed to (#11.)
4. Divide students into groups of two or three.
5. Instruct students to fit helmets and have partner(s) check if the helmet is fitted correctly.
6. Instruct students to retrieve bicycles according to number assigned.

7. Instruct one student to complete the ABC Quick Check while the partner observes to ensure that the check was completed properly and to provide prompts if an item was missed. Switch roles.
8. Instruct pairs to proceed to the riding area to meet teacher after students have successfully completed the helmet fit and ABC Quick Check.
9. Inspect helmets and instruct students to proceed on the riding course for the 'Check' of the ABC Quick Check and when finished return to the teaching station.
10. Distribute the *Bike Safety: Tips for Youth* handout and discuss some bicycling etiquette rules to follow when riding on a bicycle path/trail reinforcing the following points. Riders should:
 - Always stay to the right.
 - Pass only on the left and move back to the right when it is safe.
 - When stopped, move off the trail so others can pass.
 - Only use a small portion of the trail if riding in a group, so others may safely pass.
 - Always stay on the trail and be respectful of private property.
 - Clean up any litter/debris and Leave No Trace (for additional information on Leave No Trace, see: www.lnt.org).
 - Vocalize all signals or warnings, either by voice or bell/horn, giving people time to act.
 - Call out 'On your left' when passing.
 - Always yield to other users who are slower.
 - Always yield to riders / walkers / hikers coming uphill.
 - Always be predictable and courteous.
 - Use safe cycling skills, including constant scanning.
11. Pair students with a cycling partner with whom they will stay the entire ride.
12. Divide students in teams of 4-6, with each team having a ride captain. The ride captain is responsible for making sure all team members get to each checkpoint safely.
13. Instruct students to practice the skill of signaling when passing (horn, bell and 'on your left' verbal signal).

Assessment

1. Assess performance of bicycle path/trail group ride of each student using the following rubric.

PERFORMANCE RUBRIC: BICYCLE PATH/TRAIL GROUP RIDE

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student communicates verbally and nonverbally with other riders and path users on a consistent basis;</p> <p>Student rides under control at all times and is conscientious of others on the path;</p> <p>Student practices good cycling etiquette at all times, which include most, if not all, the behaviors listed in the <i>Bike Safety: Tips for Youth</i> handout.</p>	<p>Student communicates verbally and/or nonverbally with other riders and path users, and does so with little prompting from teacher or other riders;</p> <p>Student rides under control nearly all the time and is conscientious of others on the path;</p> <p>Student practices good cycling etiquette most of the ride without prompting by teacher, which includes a large majority of those behaviors listed in the <i>Bike Safety: Tips for Youth</i> handout.</p>	<p>Student communicates either verbally or nonverbally (but not both) with other riders and/or path users, but requires prompting from teacher and/or other riders;</p> <p>Student needs reminders to ride under control and to be more aware of others;</p> <p>Student needs almost constant reminders from the teacher and/or other riders about cycling etiquette;</p> <p>Student exhibits some of the behaviors listed in the <i>Bike Safety: Tips for Youth</i> handout, but not ones that enable her to ride on the road safely.</p>	<p>Student is unable to participate in the activity, due to unsafe riding behavior;</p> <p>Student is not aware of others;</p> <p>Student is able to comply with only a few of the behaviors listed in the <i>Bike Safety: Tips for Youth</i> handout, but not to the level needed to ride on the road, or possibly bike path.</p>

2. Assess the performance of social behavior for each student using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety



1. Follow the 2-2-2 Rule (2 wheels on the ground; 2 feet on the pedals; 2 hands on the handlebars; 2 fingers on the brake levers) while riding the bicycle.
2. Use the rear brake only to stop the bicycle, until the skill level advances to be able to safely use the front brake.
3. Instruct students to ride the bicycles on the designated course.
4. Instruct students to keep at least three-bicycles-lengths between each rider.

Differentiating Instruction

Adapted and Beginner

- Not recommended

Intermediate

- Fewer students can be in one group during the Squeeze Box activity if necessary.

Advanced

- More students can be in one group during each activity.
- Courses can be made slightly narrower or more lines added.

Best Practices



1. Provide a discreet opportunity and safe environment for students to share information pertaining to their ability and comfort level for riding a bicycle.
2. Always complete the Helmet Fit and ABC Quick Check at the beginning of every class in which the students will be riding. The use of peers/partners to practice, inspect, and correct each other will make the most efficient use of class time and reinforce bicycle safety skills. This should not replace teacher assessment.
3. Review the three-bicycles-length rule to promote safe riding. The three-bicycles-length rule is a reminder of keeping a safe distance between cyclists while riding single-file. To help maintain proper spacing, have a marker on the course that allows students to see when it is their turn to go. When the first rider gets to the marker, the next student may start riding.



UNIT 6

Bicycle Maintenance

NOTE: If time constraints prevent covering the entire bicycle maintenance unit, instructors may focus on the "Filling a Tire With Air" and "How to Lock a Bike" lessons.

OBJECTIVES

At the conclusion of this unit the student will be able to:

1. Demonstrate exceptional or reliable performance of the repair of a fallen chain as measured by the Fallen Chain rubric. (Psychomotor)
2. Demonstrate exceptional or reliable performance when changing a flat tire, as measured by the flat tire rubric. (Psychomotor)
3. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
4. List and describe key concepts from Unit 6 that illustrate a clear understanding of basic bicycle maintenance, as measured by providing responses to questions in journals. (Cognitive)

NATIONAL STANDARDS FOR K-12 PHYSICAL EDUCATION

Standard 1

The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

Standard 2

The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.

Standard 3

The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4

The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5

The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

KEY VOCABULARY

Rim Tape: A piece of rubber, cloth or plastic tape that protects the tube from puncture, especially from sharp objects such as spoke nipples.

Tire Bead: The hard edge on the actual tire that fits into the rim of the wheel.

ACTIVITIES

Each unit should include three types of activities: introduction, skill-based with assessments and cool-down/closure. In some cases, more than one activity option is offered for the introduction and closure; choose the appropriate activities that fit into your allotted class time when developing your lesson plans. If class time is too short to allow for all three types of activities, focus your lesson on the skill-based activities.

Introduction: The following activity can be used to introduce this unit of learning.

- Walk & Share

Skill-Based with Assessments: Each skill-based activity is associated with an assessment to measure student knowledge and application of the identified skill. Depending on the amount of class time available and the skill level of students, more than one of the following skill-based activities may be completed during one class.

- Fallen Chain Repair
- Fixing A Flat Tire
- Brake Adjustment (intermediate and advanced only)

Closure: The following activity can be used to conclude this unit of learning. If desired, this activity can be assigned as homework.

- Journal Writing

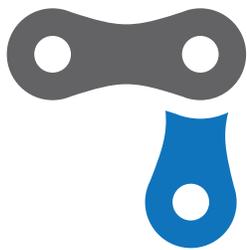
EQUIPMENT NEEDED

- Bicycles
- Bicycle tire levers
- Bicycle air pump(s) with pressure gauge
- Bicycle tire tubes
- Bicycle work stand (optional)
- Screwdriver
- Pencils
- *Bicycle Maintenance* worksheet
- *Fixing A Flat Tire* worksheet

CROSS-CURRICULAR ACTIVITIES

Language Arts

- Journal writing



SKILL-BASED ACTIVITY

Fallen Chain Repair

- Timeframe** **Beginner:** 20-25 minutes
Intermediate: 15 minutes
Advanced: 10 minutes
- Objectives** At the conclusion of this activity the student will be able to:
1. Demonstrate exceptional or reliable performance of the repair of a fallen chain as measured by the Fallen Chain rubric. (Psychomotor)
 2. Demonstrates exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)
- National Standards** Standard 1
Standard 2
Standard 4
- Equipment** • Bicycles
• Screwdriver
- Teacher Overview** This activity teaches students how to repair a fallen bicycle chain. There are two versions to repairing a bicycle chain.
- Preparation** 1. Using the screwdriver, lift the chain off of the front chainring toward the bicycle frame.
2. Practice both methods of correcting a fallen bicycle chain.
 3. Set up bicycles with the chains off the front chain rings prior to class.
- Direction** 1. Teacher should have gloves and rags handy.
2. Introduce this activity using the following prompt:
At some point when you are riding a bicycle the chain might fall off of your bicycle. This most often happens on the front chainrings. Because the chain is the part of the bicycle that provides power, a fallen chain will prevent the bicycle from working. Today, we will be learning two different methods to repair a fallen chain.
 2. Use the following sample questions to prompt student's thinking about the content in this activity.
- Q: Have you ever had your chain fall off your bicycle?**
A: Responses of yes and no will vary with each class

Q: What did you do?

A: Any of the following are acceptable:

- Used my hands to put the chain back on
- Tried but couldn't put the chain back on
- Had someone else fix the chain
- Other responses may be accepted

3. Instruct students to gather around the demonstration bicycle.
4. Explain and demonstrate the steps to method one to students using a demonstration bicycle with a fallen chain reinforcing the following points. Riders should:
 - Push the bottom portion of the rear derailleur forward to give the chain slack.
 - Put the chain back on whichever gear it has fallen off.
 - Release the bottom portion of the rear derailleur to let chain tighten.
 - Hand pump the pedal to let chain slip into gear while lifting the rear tire off the ground.
5. Instruct students to find their bicycle and put the chain on using method one.
6. Instruct students to gather around the demonstration bicycle.
7. Explain and demonstrate the steps to method two to students using a demonstration bicycle with a fallen chain reinforcing the following points. Riders should:
 - Determine if the chain has fallen off toward the frame or the crank/pedal.
 - Shift to the gear furthest away from the where the chain has fallen. (i.e., if the chain has fallen toward the bicycle frame, shift to the largest chainring).
 - Lift the rear tire off the ground and pedal the bicycle. This will allow the derailleur to do its job by picking up the chain and putting it on the appropriate gear.



Squeeze derailleur to loosen chain

Assessment

1. Assess the performance of repairing the fallen bicycle chain using the following rubric.

PERFORMANCE RUBRIC: REPAIRING A FALLEN BICYCLE CHAIN

Exceptional	Reliable	Inconsistent	Struggling/ Survival
Student can correctly fix a fallen chain using both methods, without assistance from a teacher or aide; As a result, the bike can be ridden safely.	Student can correctly fix a fallen chain using one method, without assistance from a teacher or aide, but requires assistance from a teacher or aide to use the other method; As a result, the bike can be ridden safely.	Student needs help from a teacher or aide to use either method for fixing a fallen chain; Student does not understand the process, but is unable to work through it on his own; The bike could not be ridden without help from a teacher/aide.	Student is unable to fix a fallen chain using either method, even with help from a teacher/aide; Student does not seem to understand the process at all.

2. Assess the social behavior of the student during the activity using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety

Inspect all chains to ensure they are properly adjusted at the end of this lesson before allowing students to ride bicycles.

Differentiating Instruction

Adapted and Beginners

- Use an aide or a peer to help with this activity, as needed.

Best Practice

Teach all bicycle maintenance lessons to intermediate, advanced and beginning riders of a higher cognitive level.



SKILL-BASED ACTIVITY

Filling a Tire With Air

Timeframe

Beginner: 10 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance when inflating a bike tire.
2. Understand that part of responsible bicycle riding is maintaining your bike and keeping it in good working order.

Equipment

- One bicycle.
- Bicycle Pump
- Schrader and Presta Valve Tubes
- Air pressure gauge
- Lubricants, assorted tools

Teacher Overview

This activity teaches students how to inflate a bike tire.

Directions

1. Ask students to find the tire valve. Does it look like the valve from a car tire or is it different?
 - a. Schrader Valves found on bikes are exactly the same as those found on car tires.
 - b. Presta Valves are different and will require a small screw to be loosened before the tire can be filled
2. Once you determined what type of valve the bicycle has you may need to use a different valve connector depending on the pump. Presta Valves are narrower than Schraders. Which valve connector do you think will work with each valve?
3. Have students look for the pressure range (maximum tire pressure) on the side of the tire. Remind students that actual tire pressure depends on rider weight, the type of riding and terrain and personal comfort. However for safety, tires should always be filled within the recommended range.
4. Have a student connect and fill a tire with a pump. Show how to use the gauge on the pump and a hand-held gauge.



SKILL-BASED ACTIVITY

Fixing a Flat Tire

Timeframe

Beginner: 45-60 minutes
Intermediate: 40-50 minutes
Advanced: 30-40 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance when changing a flat tire, as measured by the flat tire rubric. (Psychomotor)
2. Demonstrates exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

National Standards Standard 1
Standard 2
Standard 4

Equipment

- Bicycles
- Bicycle tire levers
- Bicycle air pump(s) with pressure gauge
- Bicycle tire tubes
- Bicycle work stand (optional)

Teacher Overview This activity teaches students how to fix a flat tire on the front wheel.

Preparation

1. Determine if students will work in small groups of 2-3 or individually.
2. Select the appropriate number of bicycles.
3. Provide a set of bicycle levers, a bicycle tube and bicycle pump for each bicycle.
4. Practice changing a flat tire before demonstrating to students.
5. Make an appropriate number of copies of the *Fixing a Flat Tire* worksheet.

Directions

1. Introduce this activity using the following prompt:

It is important to have the appropriate amount of air in the tires to ride safely and efficiently. Flat tires can happen just about anywhere so it is important to know how to fix a flat tire. Today, we are going to practice the necessary steps to fixing a flat tire on the front wheel.

2. Use the following sample questions to prompt students' thinking about the content in this activity.

Q: What are some things that cause flat tires?

A: Any of the following are acceptable:

- Glass
- Nails
- Pothole
- Tire inflation too low
- Other responses may be accepted

Q: Have you ever had a flat tire, either on your bike or car?

A: Responses will vary with each class

Q: How was the tire repaired?

A: Any of the following are acceptable:

- Patched the tube
- Replaced the tube

3. Instruct students to gather around the demonstration bicycle.
4. Explain and demonstrate the steps to remove the wheel from the bicycle reinforcing the following points. Riders should:
- Turn the bike upside down, resting on the handlebars and saddle. (Optional: A bicycle stand can be used instead of turning the bicycle upside down.)
 - Release the front brake quick release (refer to the Brake Adjustment activity on page #313).
 - Remove wheel from fork.



The correct way to use the wheel quick release is to swing the lever from the closed position to the open position. Then use the knob to loosen the quick release.

5. Explain and demonstrate the steps to remove the tube from the tire reinforcing the following points. Riders should:
- Deflate the tire.

Note the difference between Schrader and Presta valves. Presta valves only allow air to be expelled after unscrewing and pushing down gently on the top of the unscrewed valve. Use the hooked end of a tire lever to deflate a tube with a Schrader valve.

- Loosen the tire from the rim by squeezing along the entire circumference of the tire.
- Insert the flat side of the tire lever between the rim and tire, underneath the tire bead.
- Move the bead to the outside of the rim by leveraging the tire lever against the rim of the wheel. Once the bead is outside of the rim, slide the tire lever all the way around the rim to completely remove one side of the bead.

Changing a Bicycle Tire

New tires may be very stiff and require the use of two tire levers. Attach the hooked end to a spoke to hold the tire lever in place, keeping the tire bead on the outside of the rim. Using a second tire lever, insert the flat side of the tire lever under the rim of the tire, slide underneath the tire bead, moving around the rim to completely remove one side of the bead.

- Only remove one side of the tire off the rim. Do not take the whole tire off the rim.
- Pull the tube out of the tire by grabbing onto the valve stem and gently guiding the tube from the tire.

6. Explain and demonstrate the steps to inspect the tube, tire and rim tape to identify where the hole is on the tube reinforcing the following points. Riders should:
 - Lay the tube on the outside of the tire to check for any object that may have caused the flat. It can be difficult to find small holes; inflating and then spraying the tube with water can expose the hole. If the hole is small, a patch kit can be used instead of using a new tube.
 - Inspect the tire for damage and debris (sharp objects). Run fingers around the inside of the tire to check and remove debris that may have caused the flat (you may use plastic gloves or a rag to check for sharp debris). Pull out any sharp object (glass, thorn, nail, screw). It may be necessary to complete this step by first taking the entire tire off the wheel, instead of leaving one side on the wheel.
 - Look for any larger holes in the tire, in which the tube may bulge through. If there are large holes or slits in the tire, the tire should be replaced.
 - Inspect the rim tape to make sure it is covering all of the spoke nipples. If the rim tape and/or spoke nipple is damaged, see a professional bicycle mechanic.
7. Explain and demonstrate the steps to install a new tube in the tire and inflate reinforcing the following points. Riders should:
 - Inflate the new tube slightly, prior to putting tube in tire.
 - Put the valve stem in the wheel (take care that it is in fully and correctly); then put the rest of the tube in the tire.
 - Work the tire bead back behind the lip of the rim, so the tire is perpendicular to the rim.
 - Use the flat end of the tire lever to help insert the bead, being careful not to pinch the tube between the tire and the rim. Again it may be necessary to use two tire levers, as it was to take the tire off the rim.
 - Inspect the tire bead and tube all the way around one side of the tire, beginning at the valve stem. The tire bead should be seated correctly on the rim and the tube should not be pinched by the bead. Then inspect the other side. A pinched tube will result in another flat.
 - Inflate tire to the air pressure indicated on the tire wall.

8. Explain and demonstrate the steps to reinstall the wheel on the bicycle reinforcing the following points. Riders should:
 - Replace the wheel onto the bicycle fork.
 - Ensure the wheel is rotating in the correct direction, if the tire is directional, when attaching the wheel to the bicycle.
 - Make sure the quick release is on the left side of the bicycle (opposite the derailleurs) and that the wheel is evenly spaced between the forks.
 - Close the quick release by changing the lever's position from fully open to fully closed.
 - When the lever is pointing straight out (sideways or perpendicular) from the wheel there should be some resistance. If no resistance is felt at this point, tighten the clamping force (which is the knob opposite the quick release lever). If there is resistance before this point, loosen the clamping force.
 - Spin the wheel to ensure that the tire is positioned correctly and does not rub on the brakes. Close the brakes. If the wheel rubs on the brakes, make minor adjustments to the wheel quick release and possibly the brakes until the wheel no longer rubs. (refer to the Brake Adjustment activity on page #313)
 - Ensure that the wheel is tight in the fork prior to riding, or there will be an increased risk of the wheel falling off during a ride.
9. Divide students into pairs to practice changing a flat tire using the *Fixing a Flat Tire* worksheet.

Assessment

1. Assess the performance of repairing a flat tire using the following rubric.

PERFORMANCE RUBRIC: REPAIRING A FLAT TIRE

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to fix a flat tire without assistance from a teacher/aide;</p> <p>Student knows the steps and works through them correctly and efficiently;</p> <p>As a result, the bike can be ridden safely.</p>	<p>Student is able to work through nearly each step for fixing a flat tire, without assistance from a teacher/aide;</p> <p>Student may require help, but it is minimal, and can fix a flat tire with help from a worksheet;</p> <p>Student knows the steps and works through the majority of the steps correctly and efficiently;</p> <p>As a result, the bike can be ridden safely</p>	<p>Student needs help from a teacher or aide to fix a flat tire;</p> <p>Student does not understand the process and may be able to complete a few steps on her own, but needs a significant amount of help;</p> <p>The bike could not be ridden without help from a teacher/aide.</p>	<p>Student is unable to fix a flat tire, even with help from a teacher/aide;</p> <p>Student does not seem to understand the process at all.</p>

2. Assess the social behavior of the student during the activity using the following rubric.

PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, & equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, & equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, & equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

Safety

Inspect all tires to ensure they are properly attached at the end of this lesson before allowing students to ride bicycles.

Differentiating Instruction**Adapted and Beginner**

- An aide or a peer can help with this activity.
- This may be performed by students who are older and at a higher cognitive level, even though they may be beginning riders.

Best Practice

Teach all bicycle maintenance lessons to intermediate, advanced and beginning riders of a higher cognitive level.



SKILL-BASED ACTIVITY

How to Lock a Bike

Timeframe

Beginner: 10 minutes

Objectives

At the conclusion of this activity the student will be able to:

1. Demonstrate exceptional or reliable performance when locking a bike.
2. Understand appropriate places to park and secure a bicycle, and understand the best locking techniques.

Equipment

- One bicycle.
- One cable lock. A U-lock may be used instead or in addition to the cable lock.

Teacher Overview

This activity teaches students how to lock a bike properly.

Directions

Parking a Bike

1. Ask students “How should you park your bike when you are staying with it?”
 - Use kickstand and make sure it will not fall over.
 - Lean against a wall, bench, etc. in a way that it will not fall over.
 - Gently lay the bike on its side with the drive (chain) side up to prevent damaging parts. Best to choose a soft spot like grass over a paved area.

Locking/Securing a Bike

1. Always look for the most secure place available to park your bike. Without using a lock, where might that be?
 - Next to you.
 - Inside a house or garage.
 - In a (occupied) back yard.
2. If these options are not available you will need to find a place to lock the bike. What should you look for?
 - A proper bicycle rack specifically made for this purpose (Inverted "U" and Wave bicycle racks are best).
 - Older bicycle style racks were originally designed to lock the bike by the wheel can work too if you lock the bike properly.
 - A sign post or parking meter may be used in a pinch.

- **DO NOT** lock your bicycle to a tree or wooden railing. Thieves can easily and do cut wood posts to steal bikes and have been known to cut down trees to get at a bike. And if your bike is not stolen, locking a bike to a tree can still permanently injure the tree even if done just one time.
- **DO NOT** leave your unlocked bike unattended in a public space even for a minute. In the 2 seconds it takes you to hop on your bike and ride away is all the time a thief needs to steal your unlocked bike.

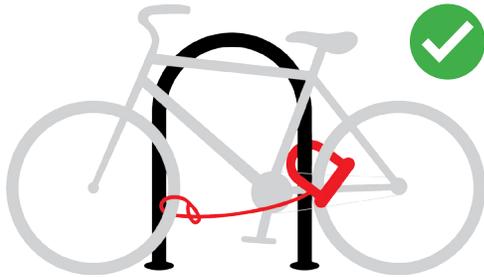
When locking your bike what should you do?

- Lock both the frame and at least one wheel, preferably the rear wheel since that is more expensive.
- If your bike has a quick release front wheel you may want to secure it too. That can be done by either removing the front wheel and attaching with the lock to the rear or using a cable to secure the front wheel in place.
- Remove any easily removable parts (seat) or items (computer, pump, water bottle).

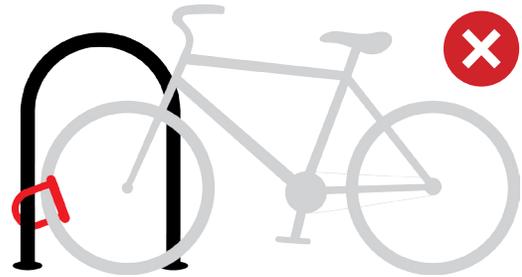
What else might help to keep your bike secure?

- Lock your bike close to your destination, maybe even in a location where you can watch it.
- Lock it in a place sheltered from the weather.
- Others?

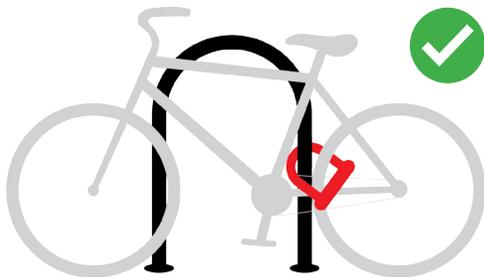
BIKE LOCKING TECHNIQUES



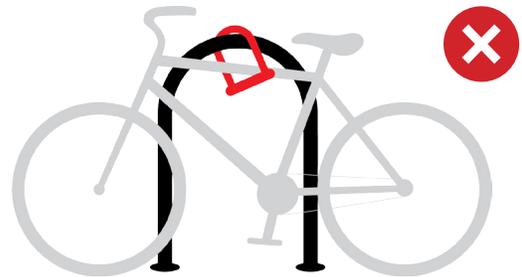
U-Lock secures rear wheel and frame, with additional cable to secure front wheel.



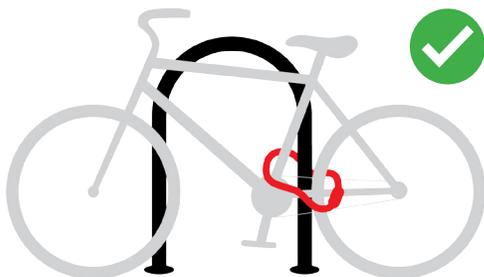
U-Lock secures front wheel only, leaving rest of bicycle vulnerable to theft.



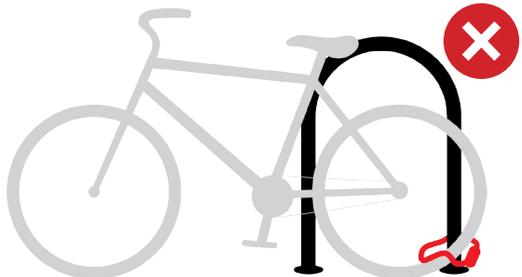
U-Lock secures rear wheel and frame.



U-Lock secures bicycle frame only, leaving both wheels vulnerable to theft.



Cable lock secures rear wheel and frame.



Cable lock secures rear wheel only, leaving rest of bicycle vulnerable to theft.



SECTION 4

Program Evaluation

This section contains a behavior survey to help understand students' relationship to bicycling, as well as pre- and post-tests to help evaluate the effectiveness of this curriculum.

The pre-test should be administered to students prior to beginning instruction, while the post-test should be given at the conclusion of the curriculum. Instructors may administer the behavior survey may at any time.

For information about evaluation, see Teaching children about bicycle safety: An evaluation of the New Jersey Bike School program¹, available free of charge at www.sciencedirect.com.

¹ Lachapelle, U., Noland, R.B. & Von Hagen, L.A., 2013. Teaching children about bicycle safety: An evaluation of the New Jersey Bike School program. *Accident Analysis & Prevention*, 52, pp.237–249.

First Name: _____ Last Name: _____

Age: _____ Grade: _____ Boy or Girl (*circle one*) Town: _____

New Jersey
BikeSchool Survey

(Circle the answer that best describes your situation.)

1. Do you know how to ride a bicycle without training wheels?	YES	NO
2. Do you have a bicycle that you can use?	YES	NO
3. Do you ride your bicycle with a parent or other adult?	YES	NO I DON'T RIDE A BICYCLE
4. Do you ride your bicycle with friends?	YES	NO I DON'T RIDE A BICYCLE
5. Do you own a bicycle helmet?	YES	NO I DON'T RIDE A BICYCLE

6. How often do you ride a bicycle? (circle one)

- A) Every day
- B) Almost every day
- C) Often (at least once or twice a week)
- D) Sometimes (once or twice a month)
- E) I don't ride a bicycle

7. How often do you ride a bicycle to school? (circle one)

- A) Every day
- B) Almost every day
- C) Often (at least once or twice a week)
- D) Sometimes (once or twice a month)
- E) I never ride a bicycle to school
- F) I don't ride a bicycle

8. If you don't ride to school, why not? (circle **all** that apply)

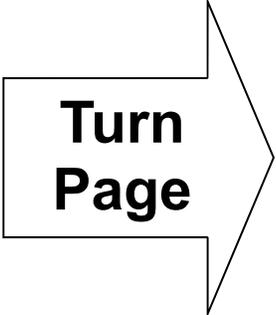
- A) My school does not allow me to ride to school
- B) My parents do not allow me to ride to school
- C) It is too far to ride to school
- D) I do not want to ride my bike to school
- E) I don't ride a bicycle

9. How often do you wear your helmet when riding your bicycle? (circle one)

- A) Always
- B) Sometimes
- C) Never
- D) I don't own a helmet
- E) I don't ride a bicycle

10. Do you enjoy riding a bicycle? (circle one)

- A) Very much
- B) Sometimes/somewhat
- C) Not very much
- D) Not at all
- E) I don't ride a bicycle



**Turn
Page**

New Jersey
BikeSchool  Survey

11. Do you ride your bicycle: (circle one)

A. On driveways or sidewalks	Yes
B. On streets within a block of your house	Yes
C. On streets more than a block from your house	Yes
D. On paths or trails	Yes
E. On streets with traffic signals	Yes
F. On four-lane (or more) streets	Yes

12. Where do you ride your bike **most** often? (circle one)

- A) On the street
- B) On driveways or sidewalks
- C) On paths or trails
- D) Other (please describe where) _____
- E) I don't ride a bicycle

13. When you ride your bicycle, where do you go? (check **all** that apply)

- | | |
|--|--|
| <input type="checkbox"/> Grocery, Drug, or Convenience Store | <input type="checkbox"/> Bus Stop/Train Station |
| <input type="checkbox"/> Park/Playground | <input type="checkbox"/> Library |
| <input type="checkbox"/> Sports Field | <input type="checkbox"/> Post Office |
| <input type="checkbox"/> School | <input type="checkbox"/> Friend or Family's House |
| <input type="checkbox"/> After School Activity | <input type="checkbox"/> Path/ Trail |
| <input type="checkbox"/> Shopping Center/Mall | <input type="checkbox"/> At Home in Driveway or Yard |
| <input type="checkbox"/> Restaurant/Food Store | <input type="checkbox"/> I don't ride a bicycle |

14. When riding your bicycle, do you use hand signals when turning and stopping?

- (Circle One) Always Sometimes Never I don't ride a bicycle

15. Have you ever fallen or crashed (more than a scrape) while riding a bicycle?

- (Circle One) YES NO I DON'T RIDE A BICYCLE



If you have answered YES and have fallen or crashed, answer below for your most recent time.

15A. If yes, were you wearing a helmet when you fell or crashed <i>(If you have fallen or crashed more than once, answer for your most recent time)</i>	YES	NO
15B. If yes, was a car or truck involved?	YES	NO
15C. If yes, did you have to go to the hospital or see a doctor?	YES	NO

First Name: _____ Last Name: _____

Age: _____ Grade: _____ Boy or Girl (circle one) Town: _____

New Jersey
BikeSchool

What do you already know about bicycling safely?

Multiple choice: circle the letter of the most correct answer.

- 1) How often should you check the safety condition of your bicycle?
 - A) Once a month.
 - B) Every spring, summer and fall.
 - C) Whenever you get a new bike.
 - D) Every time you ride.

- 2) When riding on a street, bicyclists should –
 - A) Ride on the left, in order to see cars coming.
 - B) Ride on the right, in the same direction as traffic.
 - C) Not stop for people in a crosswalk.
 - D) Ride in and out between parked cars.

- 3) The safest way to stop a bicycle quickly is to:
 - A) Put one or both feet down onto the ground.
 - B) Use only the back brake.
 - C) Use only the front brake.
 - D) Use both the back brake and front brake evenly.

- 4) If bushes or parked cars block your view at the end of a driveway or at a stop sign, what should you do before riding out?
 - A) Ride out quickly in case a car is coming.
 - B) Ride down the sidewalk until you can cross over the curb.
 - C) Listen, and slowly move your bike forward until you can see in both directions.
 - D) Turn left so you can check for oncoming traffic.

- 5) When riding on a street bicyclists should position themselves –
 - A) As close to parked cars as possible.
 - B) In bicycle lanes only. Bicyclists can only ride on streets where there are bicycle lanes.
 - C) On the right-hand side of the lane leaving enough room from parked cars to avoid the “door zone.”
 - D) Not on a street but on the sidewalk.

- 6) Which of the following helmets is worn correctly?

A



B



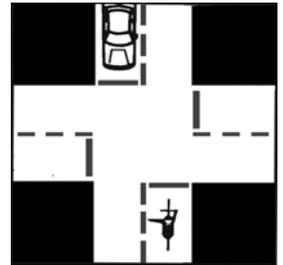
C



D



**Turn
Page**

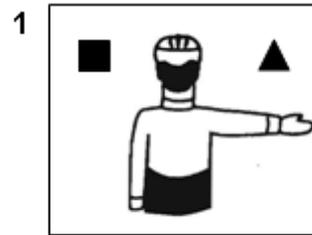


- 7) At a stop sign, bicyclists should always –
- A) Slow down and signal to let others know they're coming through.
 - B) Stop, signal, and look left – right – and left again before riding out.
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 - D) Signal and look only to the left for walkers.

8) What is the bicyclist in the pictures signaling to do?

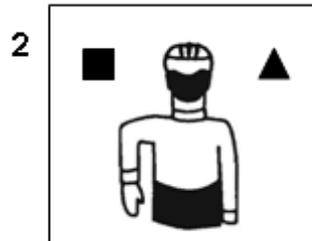
8A. Picture 1

- A) Make a left turn towards the square.
- B) Make a right turn towards the triangle.
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8B. Picture 2

- A) Make a left turn towards the square.
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True and False

9) I should wear my helmet only when riding on a busy street.

_____ True _____ False

10) When riding on the street, bicyclists must follow the same rules as car and truck drivers.

_____ True _____ False

11) If I'm going straight and passing a side street that has a stop sign, I don't need to look for cars.

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12) Riding with extra people on the back or on the handlebars of my bike is safe as long as I ride slowly and can see in all directions.

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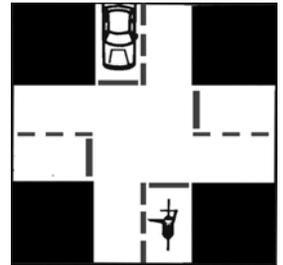
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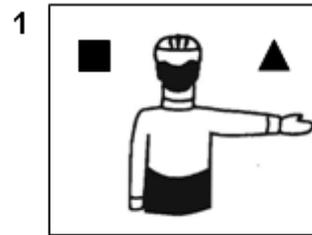


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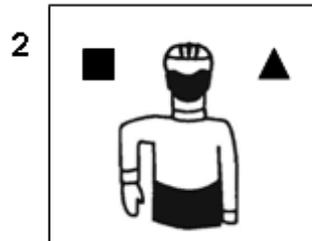
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Pre- & Post-Test Answer Key



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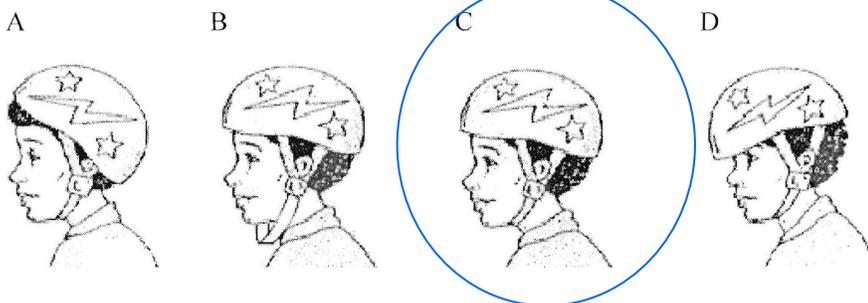
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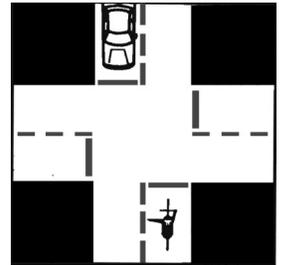
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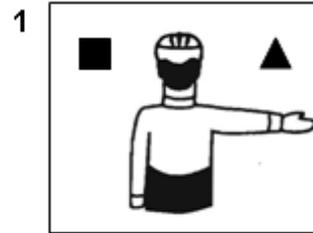


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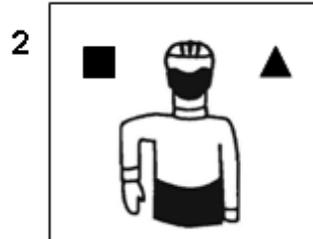
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For more information, contact the New Jersey
Safe Routes to School Resource Center:
srts@ejb.rutgers.edu
www.saferoutesnj.org