

Award  
Winning

# Safe Routes for Kids

## Bicycle Safety Program Curriculum

THIRD EDITION



THE BICYCLE  
TRANSPORTATION

ALLIANCE presents

a comprehensive

program that

teaches traffic savvy

through classroom activities

and on-the-bike skills practice.

The goals of the extensive road,  
and specifically on-the-bicycle,

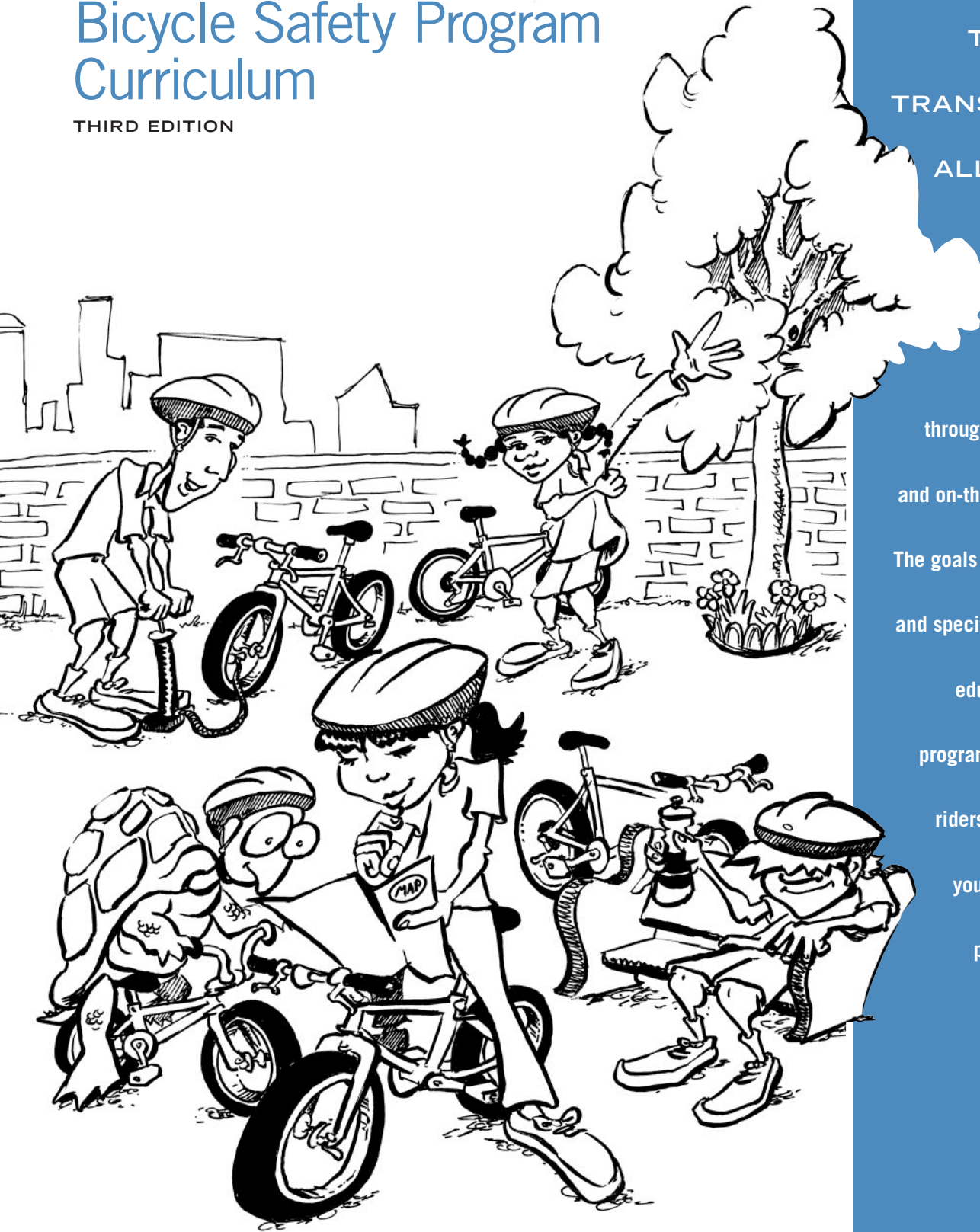
education offered by this

program are to increase bike

ridership and safety among

youths so that they travel

predictably and safely.



# Acknowledgements

## BACKGROUND

The Bicycle Safety Program was developed by the Bicycle Transportation Alliance through a grant provided by the Oregon Department of Transportation. This safety curriculum was modeled using the following programs and educational materials:

*Traffic Safety Education Guide.*  
University of Florida, Gainesville (1998)

*Effective Cycling: Kids II.* League of American Bicyclists

*Basics of Bicycling: Version 1.1.*  
Bicycle Federation of America

*Kids on Bikes In Chicago*  
(Pamphlet). City of Chicago

*The Alaska Bicycle Driver's Guide*  
(Booklet); State of Alaska,  
Department of Public Safety

*Training Programs for Bicycle Safety.*  
Harborview Injury Prevention and  
Research Center (1998)

*Effective Cycling.* John Forester,  
MIT Press (1984)

## PROGRAM SPONSORS

The following sponsors gave essential financial and materials support that made our first year a success.



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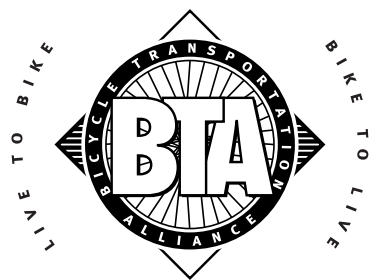
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# Table of contents

CHAPTER

PAGE

INTRODUCTION	<b>Introduction to the Safe Routes for Kids Bicycle Safety Program</b> . . . . .	i
OVERVIEW	<b>Overview of cycling program</b> . . . . .	xi
LESSON 1	<b>Bicycle ridership and safety</b> . . . . . <i>Purpose:</i> Students learn traffic laws and the civic responsibility of riding	1
LESSON 2	<b>Helmets, gear and bike parts</b> . . . . . <i>Purpose:</i> Students learn the benefits of and to properly fit a bicycle helmet; they learn parts of the bike	13
LESSON 3	<b>Laws, hazards, and repair</b> . . . . . <i>Purpose:</i> Students review traffic laws, address riding hazards and repairing flat tires	27
LESSON 4	<b>Traffic simulation; fitting bikes</b> . . . . . <i>Purpose:</i> Students learn proper intersection behavior, seat placement, bicycle maintenance and sizing of bicycles	35
LESSON 5	<b>Controlling, stopping and signalling</b> . . . . . <i>Purpose:</i> Students learn primary bicycling maneuvers including scanning for traffic	45
LESSON 6	<b>Riding with traffic</b> . . . . . <i>Purpose:</i> Students learn proper cycling techniques for riding in traffic	55
LESSON 7	<b>Intersections</b> . . . . . <i>Purpose:</i> Students learn to yield and properly turn through intersections and driveways	63
LESSON 8	<b>Hazards and emergency avoidance</b> . . . . . <i>Purpose:</i> Students learn to identify and avoid bicycling hazards	71
LESSON 9	<b>Neighborhood bike ride / Bike rodeo</b> . . . . . <i>Purpose:</i> Students either go on the road for a practice ride or go through a series of bicycling activities	79
LESSON 10	<b>Neighborhood ride and written test</b> . . . . . <i>Purpose:</i> Students either go on the road for the final test practice ride or go through a series of bicycling activities for post-testing	85
RESOURCES	<b>Additional learning resources</b> . . . . .	89
HANDOUTS	<b>Handouts and worksheets</b> . . . . .	99
INDEX	<b>Index</b> . . . . .	121



# Safe Routes for Kids Bicycle Safety Program

OVERVIEW

Teachers, you are about to offer your students the national award-winning Safe Routes For Kids education program, a comprehensive two-part program that teaches bicycle safety education and transportation alternatives and solutions. The Bicycle Safety Program curriculum teaches traffic savvy through classroom activities and on-the-bike skills practice. Working with the Bicycle Transportation Alliance (BTA), a statewide non-profit organization, will make it easy. BTA instructors are working with classes throughout Oregon and Southwest Washington, bringing bikes, helmets and other program materials to make your program a success.

Why is the BTA offering all of these resources? Because children face a greater likelihood of death or disability through traffic related crashes than any other cause. Children between the ages of 10 and 14 have the highest rate of bicycle crashes for all age groups and since youths are usually at fault, a majority of crashes can be avoided through education. The BSP is also a great way for youth to stay active and healthy. At a time when obesity amongst children and adults has reached epidemic proportions, bicycling is an excellent and efficient means to meeting daily physical activity needs.

Youth use the roads for bicycling everyday. Yet roads can be hazardous and children are not formally educated to skillfully maneuver on the streets. As our children get older, they also increase the distance they travel and are thus exposed to higher traffic streets. Studies show that parents grant their children a greater degree of freedom to travel from home (called home range) between the ages of 10-12. These freedoms typically coincide with the move from elementary to middle school. Parents are justified to grant preadolescents more freedom because their mental, physical, perceptual, and coordination abilities are rapidly increasing to adult capacity. The extensive road, and specifically on-the-bicycle, lessons offered by this program are designed to increase bike ridership, physical activity and safe and predictable riding amongst youth.

INTRO

<b>Welcome</b>	<b>ii</b>
<b>What students learn</b>	<b>iii</b>
<b>Background of cycling education</b>	<b>iv</b>
<b>Overview of lesson plans</b>	<b>v</b>
<b>Starting and implementing</b>	<b>vi</b>
<b>Getting help</b>	<b>vii</b>
<b>Statewide Education Goals</b>	<b>viii</b>

BACKGROUND

The BICYCLE TRANSPORTATION ALLIANCE (BTA), a 501 (c)(3) a non-profit organization, works to promote bicycle use and to improve bicycling conditions throughout the State of Oregon. Active since 1990 in the Portland metro region, BTA members work in partnership with citizens, businesses, community organizations and government agencies to make our communities in Oregon safer, more pleasant and more livable.

In the Fall of 1998, the BTA began implementing its new Bicycle Safety Program. The Bicycle Safety Program began with seed money provided by the Oregon Department of Transportation, Transportation Safety Division. The BTA implements the Bicycle Safety Program in schools throughout Oregon and SW Washington, provides support, trainings, equipment, and implementation services. The BTA has taught this program to over 14,000 children in Oregon and SW Washington. In June of 2003, the BTA received the National Bicycle Education Leadership by the League of American Bicyclists at their National Bicycle Education Leaders Conference. The BTA has extensive experience with teaching bicycle safety, this third edition includes refinements as a result of field experience and evaluation.

# Safe Routes for Kids Bicycle Safety Program

BACKGROUND

LESSON

## Goals for Bicycle Safety Program

- Increase safety of youth bicyclists
- Increase the number and frequency of children riding their bicycles
- Improve the lives of children by improving health, learning capacity, independence, and community conditions for bicycling.

## Welcome to the Safe Routes for Kids Bicycle Safety Program

The Bicycle Safety Program (BSP) is a comprehensive curriculum, funded by the Oregon Department of Transportation, with a goal to teach 4th-7th grade students to travel safely on a bicycle. Students learn the traffic rules and regulations, the potential hazards to travelling and handling skills needed to cycle effectively, appropriately and safely through their community. The BSP promotes safe youth cycling and offers on-the-bicycle training; the BSP also uses hands-on in-class lessons to teach safety concepts and laws. The curriculum is geared to meet Oregon's statewide health and physical education Benchmarks. A series of corresponding optional activities are offered that meet reading, math, science, social science, and civics Benchmarks. Many of these optional activities are also found in the *Safe Routes for Kids – Transportation Alternatives and Solutions* curriculum.

Ten cycle safety lessons, lasting 55 to 60 minutes each, are provided in this book. Of the ten lessons, four are in-class and six are on-the-bicycle. The lessons are developed to be taught on consecutive days but can be taught over the course of multiple weeks. (*Note: A variety of lesson plans from 7 to 10 hours are provided in the next section, Overview of Cycling Program [p. xi]*).

The Safe Routes for Kids learning package includes the BSP and the Transportation Alternatives and Solutions curricula that are designed to coincide with other school-based bicycle advocacy and education programs. Expanded Safe Routes for Kids lesson plans may include graphing bicycle ridership to school, survey of students' transportation behavior, mapping safe bicycle routes, and learning the principles of physics that apply to a bicycle. In-school promotions, such as the Bike to School Challenge and Walk to School Day, can be organized and students can learn to organize an event and record the effects of their promotional efforts.

The Safe Routes for Kids curriculum packages is a perfect school-based learning model that is part of the international Safe Routes to Schools model. The Safe Routes to School model starts with an adult driven task-force that helps determine needs and solutions to schools traffic safety. In Oregon, the Department of Human Services developed an Oregon Safe Routes to School Supplement, see [www.dhs.state.or.us/publichealth/hpcdp/index.cfm](http://www.dhs.state.or.us/publichealth/hpcdp/index.cfm) or call (503) 731-4025 for references. The National Highway Transportation Safety Administration (NHTSA) also developed a toolkit that guides community members and school administration to run Safe Routes to Schools programs and helps connect the classroom and children to the adult-led process.



## What students learn

The curriculum teaches children to ride bicycles properly and safely. Because of high crash rates and riding activity, the BSP is geared for 4th–7th graders. The BSP emphasizes educating students to cycle by the traffic laws in order to make them safe and predictable cyclists. The BSP also promotes cycling as a way to increase independence and physical activity for an increasingly overweight youth population.

During the Bicycle Safety Program, students learn:

- Communication skills
- Writing skills
- Team building skills
- Using a bicycle for an active and healthy lifestyle
- Rules of road and riding predictably — including intersections, traffic signs, riding position, looking back for traffic
- Riding skills to avoid hazards
- Properly fitting a helmet
- Bicycle laws
- Benefits of cycling
- Basic mechanics

By the conclusion of the program, students should be able to:

- Explain traffic rules and regulations that pertain to cyclists. Students should be able to demonstrate this behavior on a bicycle including traveling in the proper direction and location, turning and yielding through intersections.
- Demonstrate the ability to work in a team setting, communicating with the team’s members, self-esteem building, and general assertiveness.
- Discuss the most common cause for crashes, identify riding hazards and demonstrate an understanding of hazards avoidance maneuvers on a bicycle.
- Properly fit a bicycle helmet on their head and recognize the symptoms of improper fit.

### Statewide Common Curriculum Goals

A primary objective is to have students achieve the Statewide Education Goals for health and physical education. By implementing the journal assignments and the Investigation Activities, the curriculum can meet writing, math, science, civics, and social science Benchmarks. Elements of the BSP and other bicycle curriculum may be used to further investigate any of the above education areas (a) see page viii for list of Curriculum Goals; b) see page 89 for curriculum resources.

# Safe Routes for Kids Bicycle Safety Program

## BACKGROUND

The Bicycle Safety Program is:

- a successful program that has reached over 14,000 students.
- geared for Oregonians and Oregon's driving regulations.
- researched and developed by avid cyclists.
- reviewed by teachers, principals, health officials, bicycle planners, and other cycling service providers.
- focused on providing on-the-bicycle training.
- teaching children at the time they are venturing into high traffic streets and are most susceptible to bicycle crashes.

Theories that the BSP are based on:

- proper training will decrease crashes today as cyclists and tomorrow as both cyclists and automobile drivers.
- decreases in crashes will bring about a healthier population.
- bicycle riding is an excellent source of exercise for an increasingly unhealthy, inactive and overweight youth population. Promoting cycling as a means of transportation will develop a population of more active and healthy youth and later adults.
- youth over the age of 10 are travelling further, have increased mental and physical abilities and are generally allowed greater freedoms and an extended "home range". Children should receive bicycle safety education during or soon after their 10th year.

## LESSON

### Background of cycling education

This curriculum is a product of extensive research and application. It is based on similar successful programs implemented in Florida, Montana, Minnesota, and by national cycling organizations such as the League of American Bicyclists and the National Center for Bicycling and Walking. The above programs have been documented as effective in reducing bicycling related crashes causing injury and fatalities among youths (see *Training Programs for Bicycle Safety*. Harborview Injury Prevention and Research Center, 1998). In addition to research, this curriculum has been taught to over 14,000 children in Oregon and SW Washington.

On-the-bicycle training done in a comprehensive manner are the two elements that make the BSP effective in teaching youth. Bicycle programs that are comprehensive and that put kids on bicycles have been shown to be effective in teaching riding skills and decreasing the rates of bicycle-automobile crashes. In contrast, the Harborview Injury Prevention report states that short-term programs, such as a two-hour program implemented in Canada, are inadequate: it "was not effective in improving safe cycling behavior, knowledge, or attitudes among fourth grade children due to its inadequate time frame" (page 3).

The BSP also serves as an early segment in a continuum in traffic safety education. Young drivers, often lacking extensive drivers education, impose the highest risk to the safety of other vehicle operators and pedestrians. Yet children that were "previously trained in bicycle safety transfer their knowledge and skills to motor vehicle driving skills and safety" (Stutts and Hunter, 1990 and McArthur, 1998 as in Harborview). Therefore, the BSP not only benefits children, but benefits the entire community by providing more education and by potentially decreasing deadly motor vehicle crashes.

# Overview of the lesson plans

## CURRICULUM LENGTH AND STRATEGY

The curriculum provides four in-class lessons that will stimulate students by showing interesting videos and conducting hands-on exercises such as bicycle helmet fit and flat tire repair. Six on-the-bicycle lessons are fun for students and progressively build riding skills so students are able to safely ride on the street.

The lesson plan as laid out in this curriculum is divided into two sections:

- Lessons 1-4: In-class activities
- Lessons 5-10: On-bike activities

A program overview of each lesson and their activities are provided starting on page xi. In this section we provide a variety of lesson plan formats ranging between 7-10 instructional hours. The curriculum in this book is laid out in 10 one-hour lessons, see page xii. A newer strategy that the BTA uses for this third edition is to integrate in-class and on-bike activities, getting students biking by Day 3 to pique their interest. See page xiii for this format. Other lesson plan formats include:

- Eight 50-minute classes that introduce bikes early
- Ten 45-minute classes
- Seven 1:20-minute classes

The flexibility of the BSP allows teachers to shift the order, amount of time spent and delete activities from the base 10-hour lesson plan.

The ten lesson, lesson plan is designed to teach and reinforce the essential safety components to students. The seven lesson format will teach students all elements of the course but will not provide essential reinforcement. Alternative lesson plans shorter than seven instructional hours will fail to provide the minimum exposure to all of the essential bicycling safety activities.


Each individual lesson plan is formatted like a chapter. The lesson plan provides an overview of the lesson, the health and physical education goals achieved by the lesson, description of the activities, details of and how to administer the activities, required materials, and copies of handouts for each activity. Starting on page 89 is information to assist teachers, such as a complete list of required program materials, ways to find additional resources, guides, curriculum, samples of letters to parents, and additional readings.

Throughout this curriculum, you will see the following guideposts to quickly and easily guide you to the information you are looking for:



### Discussion

Indicates that the material is for general class discussion, and can be read aloud.

The estimated completion time is indicated at bottom. At the beginning of each chapter, this icon appears as .


In the “Lesson” column (at left), material to be read aloud is indicated by this style and indented:

Here is a sample of text intended as interactive class material.



### Activity

This icon indicates that the material is an activity to be carried out by the entire class.

The estimated completion time is indicated at bottom. At the beginning of each lesson, the simplified version appears as .


In the “Lesson” column (at left), activity information is set in this type style:

Here is a sample of directional information, meant to be read ahead of time.



### Homework

Indicates a homework assignment or journal entry to be made indi-

vidually by the students. At the beginning of each lesson, this icon appears as .



# Safe Routes for Kids Bicycle Safety Program

## Starting and implementing

The Bicycle Safety Program runs like a well-oiled chain once your equipment is ready, the school administration is on board and community involvement is in place. Read through the curriculum before implementation. It is helpful to review the Materials Checklist, on page 90, to get a complete list of the items you will need. As you consider all of the program logistics that should be in place prior to running the BSP, you may decide to contact other community groups to provide supporting materials and volunteers. Please use the list below for ideas on where to find help with certain aspects of the program.

**Bicycle Transportation Alliance:** Teacher trainings, program materials assistance, program set-up, program implementation.

**School Administration:** Field trip or off-campus approval for community rides, insurance and liability issues, parent volunteer recruitment, storage of program bicycles, storage of students' bicycles.

**Parent Teacher Organizations:** Parent volunteers for on-street lessons, funding.

**Other school support possibilities:** School Police officer, safety administrator, Americorps member.

**Police Bureau Traffic Safety Section:** Escort for on-street practice and community rides.

**Trauma Nurses Talk Tough:** School-wide safety presentations, possible helmet sales.

**Hospital:** Helmet donations, caps to prevent transmission of lice.

**Community Members:** Volunteers for on-street lessons and community ride days.

**Bike Shops:** Mechanical support before and during program, equipment purchasing assistance, volunteers for community ride days.

**Bike Clubs:** Volunteers for on-street lessons and community ride days, funding.

**Businesses:** Volunteers for on-street lessons and community ride days, financial support.

## Getting help with implementing the curriculum

Through a start-up grant from the Oregon Department of Transportation, Traffic Safety Division, and additional funding from many organizations, the BTA is training teachers and community members to implement the program. The Teacher Training is offered as a graduate or undergraduate credit course through Portland State University; the training can also be taken for no credit.

The BTA will administer resources to assist with the implementation of the BSP. Support includes: acquisition of bicycles; coordination with community members and services; training; curriculum development; and in-class support. The BTA will work to make each school it visits a “bike-friendly school” through an assessment of the bicycle parking facilities, promotion of bicycling through safety activities and working with school staff and administration to support increase cycling.

Also see pages 92 and 95 for a list of organizations and materials that may be useful in implementing the program.

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# Safe Routes for Kids Bicycle Safety Program

## Statewide Education Goals

### Health

*Develops understanding of health promotion to develop skills to reduce health risks and maintain and enhance healthy lifestyles*

#### BICYCLE SAFETY PROGRAM

##### **Controllable health risks: apply prevention and risk reduction concepts to health-related interventions**

- Understand and apply prevention and risk reduction strategies for health-related interventions
- Predict short- and long-term consequences of safe, risky and harmful behaviors

##### **Safe and healthy environment: explain safe physical, social and emotional environments for individuals, families, schools and communities**

- Understand and apply strategies to improve and maintain individual, family, schools and community health
- Apply injury prevention, first aid and emergency care skills

##### **Informed consumer: analyze health information, products and services while considering media, technological and cultural influences**

- Analyze influences of culture, technology and the media of health-related products as a consumer or potential consumer

##### **Healthy relationships: understand and apply interpersonal communication skills to enhance safety**

- Understand and apply concepts of effective communication with peers and adults

### Physical education

*Prepares students for the long-term benefits of an active and healthy life*

#### BICYCLE SAFETY PROGRAM

##### **Expressive and efficient movement**

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement
- Demonstrate basic strategies specific to one team activity and one dual or individual activity
- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

##### **Fitness for lifetime**

- Develop personal activity goals and describe benefits that result from regular participation in physical education
- Analyze and categorize physical activities according to potential fitness benefits

##### **Self-management and social behavior**

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

## Social sciences

*Prepares students for responsible citizenship*

### BICYCLE COUNTING AND SURVEYS

#### Social science analysis

- Explain various perspectives on an event or issue and the reasoning behind them
- Identify, analyze and select a course of action to resolve an issue

#### Roles, rights and responsibilities of a U.S. citizen

- Understand personal and political rights of citizens in the U.S.
- Understand participatory responsibilities of citizens in the community and in the political process

### BICYCLE MAPPING PROJECT

#### Geographic skills and concepts

- Use maps and other geographic tools and technologies to acquire, process, and report information from a spatial perspective
- Understand the spatial concepts of location, distance, direction, scale, movement and region
- Compare and analyze physical and human characteristics of place and regions
- Understand how people and the environment are interrelated

### BICYCLE ADVOCACY PROJECT

#### Roles, rights and responsibilities of a U.S. citizen

- Understand personal and political rights of citizens in the U.S.
- Understand participatory responsibilities of citizens in the community and in the political process

#### State and local history

- Understand and interpret events, issues and developments in the history of one's family, local community and culture

#### Structure, function and role of government

- Understand the organization, responsibilities and interrelationships of local, state and federal government in the U.S.

# Safe Routes for Kids Bicycle Safety Program

BACKGROUND

LESSON

## Statewide Education Goals

### Math

*Use of numbers and symbols to define, communicate and solve problems*

#### BICYCLE INVESTIGATION ACTIVITY

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#### Application of number theories, rules and algorithms

- Use ratios, proportions and percent to solve problems
- Demonstrate relationships among numbers (fractions, percents, ratios)

#### Organization of data

- Read, construct, and interpret displays of data (e.g., charts, table, graphs)
- Formulate hypotheses, design and conduct experiments using appropriate technology, draw conclusions based on data and communicate results

#### Statistics

- Develop and use measures of central tendency and variability (e.g., mean, median, mode, range, quartiles)
- Analyze and evaluate statistical claims and arguments for erroneous conclusions and/or distortions

#### Representations of mathematical relationships

- Describe patterns and other relationships using tables, graphs and sentences
- Observe, analyze and explain relationships

### Science

*The rational and systematic observation, identification, description, investigation and explanation of nature*

#### BICYCLE INVESTIGATION ACTIVITY

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#### Science in personal and social perspectives

- Describe how daily choices of individuals, taken together, affect global resource cycles, ecosystems and natural resource supply
- Describe risks and benefits in personal and community health from a science perspective

#### BICYCLE AS A SYSTEM

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#### Unifying concepts and processes

- Apply explanatory concepts of model, system, theory, probability, replication

#### Force and motion

- Understand fundamental forces, their forms and effects of motion

#### Energy

- Understand the interactions of energy and matter

### Writing

*Use writing as a tool to learn, reflect and communicate*

#### JOURNAL WRITING HOMEWORK PROJECT

---

- Communicate knowledge of the topic, including relevant examples, facts anecdotes and details
- Express ideas in an engaging and credible way appropriate for audience
- Demonstrate knowledge of spelling, grammar, punctuation, capitalization



# Overview of cycling program



## OVERVIEW

Overview of entire ten lesson cycling program (60-minute classes)	xii
Ten lesson overview — introducing bikes early (for 50 minute classes)	xiii
Eight lesson overview — introducing bikes early (50-minute classes)	xiv
Ten lesson overview (45-minute classes)	xv
Seven lesson overview (1:20-minute classes)	xvi

## OVERVIEW

## STATEWIDE EDUCATION GOALS

In this section we provide a variety of lesson plan formats ranging between 7-10 instructional hours. The curriculum in this book is laid out in 10 one-hour lessons, see page xii. A newer strategy that the BTA uses for this third edition is to get children on the bicycles, and out of the classroom, quickly to pique their interest. For a 10-hour lesson plan we start bike riding in Lesson 3, not Lesson 5 as done in the past, see page xiii for the new format. Other lesson plan formats include:

- Eight 50-minute classes that introduce bikes early
- Ten 45-minute classes
- Seven 1:20-minute classes

The flexibility of the BSP allows teachers to shift the order, amount of time spent and delete activities from the base 10 hour lesson plan.

Bicycle helmets and bicycle laws are of utmost importance and should not only be formally taught but also stressed each day in class. This can often be done with warm-up questions and activities.

For support to use this curriculum, see the introduction section of this book. For resources, please see the final section of the curriculum.

# Overview of cycling program

BACKGROUND

LESSON

This overview corresponds with the order of lesson plans in this book.

## Overview of entire ten lesson cycling program (for 60-minute classes)

<b>DAY 1</b> <b>Bicycle ridership and safety</b> Introduction: Program overview <i>Optional:</i> Introduction to investigation Pre-test* Video Why do we have traffic laws? Riding on the road and through intersections	<i>In-class</i> <i>Page 1</i>	Slalom Learning to look back: riding with one hand Scanning and signaling Gearing <i>Optional:</i> Snail race <i>Optional:</i> Follow the leader
<b>DAY 2</b> <b>Helmets, gear and bike parts</b> <i>Optional:</i> Melon drop Fitting helmets Signs Bike parts and components Bike gear <i>Optional:</i> Bicycle investigation <i>Optional:</i> Survey	<i>In-class</i> <i>Page 13</i>	<b>DAY 6</b> <b>Riding with traffic</b> Predictability: Riding on the right Exiting driveways Introduction to intersections Moving through intersections
<b>DAY 3</b> <b>Laws, hazards, and repair</b> Rules of the road (revisited) Common reasons for collisions Hazards identification Fixing flat tires <i>Optional:</i> Video <i>Optional:</i> Bicycle investigation	<i>In-class</i> <i>Page 27</i>	<b>DAY 7</b> <b>Intersections</b> Introduction to intersections Moving through intersections Three left turns Intersections: Putting it all together <i>Optional:</i> Intersection practice
<b>DAY 4</b> <b>Traffic simulation; fitting bikes</b> Right-of-way How to drive a car / bike Proper fit of bicycles Basic bicycle maintenance check <i>Optional:</i> Secure bicycle locking <i>Optional:</i> Bicycle investigation	<i>In-class</i> <i>Page 35</i>	<b>DAY 8</b> <b>Hazards and emergency avoidance</b> Hazards (revisited) Emergency avoidance techniques: Railroad tracks, emergency stop, rock dodge, quick turn <i>Optional:</i> Neighborhood ride
<b>DAY 5</b> <b>Controlling, stopping and signaling</b> Bike / helmet check (revisited) Stopping	<i>Playground</i> <i>Page 45</i>	<b>DAY 9</b> <b>Neighborhood bike ride / Bike rodeo</b> Discussion: Physically fit lifestyle Neighborhood ride Bicycle rodeo
<b>DAY 10</b> <b>Neighborhood ride and written test</b> Post-test / Evaluation* Neighborhood ride	<i>Playground/Street</i> <i>Page 85</i>	

\*It is preferable to administer the Pre-test prior to the course and the Post-test after the BTA instructor leaves.

# Ten lesson overview — introducing bikes early (for 50 minute classes)

*Note: Because this lesson has students getting on-bike quickly, it is suggested that teachers hold at least a 5-minute talk prior to doing cycling activities.*

<p><b>DAY 1</b> <b>Bicycle ridership and safety</b> Introduction: Program overview Video Optional: Survey (see page 25)</p>	<p><i>In-class</i> <i>Page 1</i></p>	<p><b>DAY 6</b> <b>Laws, hazards and repair</b> Common reasons for collisions Hazard identification Fixing flat tires Rules of the road (revisited)</p>	<p><i>In-class</i> <i>Page 27</i></p>
<p><b>DAY 2</b> <b>Helmets, gear and bike parts</b> Optional: Melon drop Fitting helmets Bike parts and components Introduction to basic bicycle maintenance check</p>	<p><i>In-class</i> <i>Page 13</i></p>	<p><b>DAY 7</b> <b>Intersections</b> Bike/helmet check (revisited) Moving through intersection: Left hand turns Three left turns</p>	<p><i>Street</i> <i>Page 63</i></p>
<p><b>DAY 3</b> <b>Fitting bikes; Controlling, stopping and signaling</b> Helmet check (revisited) Proper fit of bicycles Stopping Slalom Learning to look back: riding with one hand Optional: Gearing Optional: Slow race</p>	<p><i>Playground</i> <i>Page 40, 45</i></p>	<p><b>DAY 8</b> <b>Intersections</b> Bike/helmet check (revisited) Intersections: Putting it all together Intersection practice</p>	<p><i>Street</i> <i>Page 68 (63)</i></p>
<p><b>DAY 4</b> <b>Laws</b> Laws Street signs Rules of the road Right-of-way Road positioning</p>	<p><i>In-class</i> <i>Page 27, 36</i></p>	<p><b>DAY 9</b> <b>Neighborhood ride</b> Bike/helmet check (revisited) Neighborhood ride</p>	<p><i>Street</i> <i>Page 79</i></p>
<p><b>DAY 5</b> <b>Riding with traffic</b> Bike/helmet check (revisited) Predictability: Riding on the right Exiting driveways Introduction to intersections</p>	<p><i>Street</i> <i>Page 55</i></p>	<p><b>DAY 10</b> <b>Neighborhood ride</b> Bike/helmet check (revisited) Neighborhood ride</p>	<p><i>Street</i> <i>Page 85</i></p>

*\*For this lesson sequence, it is ideal to administer the Pre-test prior to these lessons and the Post-test the class session after the final neighborhood ride.*

# Overview of cycling program

BACKGROUND

LESSON

## Eight lesson overview — introducing bikes early (for 50 minute classes)

<b>DAY 1</b> <b>Bicycle ridership and safety</b> Introduction: Program overview Video Introduction to laws	<i>In-class</i> <i>Page 1</i>	<b>DAY 5</b> <b>Riding with traffic</b> Bike/helmet check (revisited) Predictability: Riding on the right Exiting driveways Moving through intersection: Going straight	<i>Street</i> <i>Page 55</i>
<b>DAY 2</b> <b>Helmets, gear and bike parts</b> Optional: Melon drop Fitting helmets Bike parts and components Introduction to basic bicycle maintenance check	<i>In-class</i> <i>Page 13</i>	<b>DAY 6</b> <b>Intersections</b> Bike/helmet check (revisited) Moving through intersection: Right hand turns Moving through intersection: Left hand turns	<i>Street</i> <i>Page 63</i>
<b>DAY 3</b> <b>Fitting bikes; Controlling, stopping and signaling</b> Helmet check (revisited) Proper fit of bicycles Stopping Slalom Learning to look back: riding with one hand Optional: Gearing Optional: Slow race	<i>Playground</i> <i>Page 40, 45</i>	<b>DAY 7</b> <b>Intersections</b> Bike/helmet check (revisited) Intersections: Putting it all together Intersection practice	<i>Street</i> <i>Page 68 (63)</i>
<b>DAY 4</b> <b>Laws and hazards</b> Laws Street signs Rules of the road Right-of-way Hazard identification Road positioning	<i>In-class</i> <i>Page 27, 36</i>	<b>DAY 8</b> <b>Neighborhood ride</b> Bike/helmet check (revisited) Neighborhood ride	<i>Street</i> <i>Page 79, 85</i>

*\*For this lesson sequence, it is ideal to administer the Pre-test prior to these lessons and the Post-test the class session after the final neighborhood ride.*

# Ten lesson overview (for 45-minute classes)

<p><b>DAY 1</b> <b>Bicycle ridership and safety</b> Introduction: Program overview Pre-test* <i>Optional:</i> Introduction to investigation Video Laws (introduction)</p>	<p><i>In-class</i> Page 1</p>	<p>Scanning and signaling <i>Optional:</i> Gearing <i>Optional:</i> Snail race <i>Optional:</i> Follow the leader</p>
<p><b>DAY 2</b> <b>Bicycle laws and gear</b> Laws / traffic signs / Right-of-way / Riding on the road and through intersections Bike parts and components Bike gear <i>Optional:</i> Bicycle investigation <i>Optional:</i> Survey</p>	<p><i>In-class</i> Page 6, 13</p>	<p><b>DAY 6</b> <b>Riding with traffic</b> Quick stop Predictability: Riding on the right Exiting driveways Introduction to intersections</p>
<p><b>DAY 3</b> <b>Helmets</b> Fitting helmets Secure bicycle parking</p>	<p><i>In-class</i> Page 13</p>	<p><b>DAY 7</b> <b>Intersections</b> Moving through intersections Three left turns Intersections: Putting it all together</p>
<p><b>DAY 4</b> <b>Traffic simulation; fitting bikes</b> How to drive a car / bike (modified to fit 20 minutes) Basic bicycle maintenance check Proper fit of bicycles</p>	<p><i>Playground</i> Page 35</p>	<p><b>DAY 8</b> <b>Neighborhood ride / Bike rodeo</b> Neighborhood ride Rodeo</p>
<p><b>DAY 5</b> <b>Controlling, stopping and signaling</b> Bike / helmet check (revisited) Stopping Slalom Learning to look back: Riding with one hand</p>	<p><i>Playground</i> Page 45</p>	<p><b>DAY 9</b> <b>Neighborhood ride</b> Neighborhood ride</p>
		<p><b>DAY 10</b> <b>Written test / Conclusion</b> Post-test Discussion: Physically fit lifestyle <i>Optional:</i> Review curriculum <i>Optional:</i> Crash stories</p>

\*For this lesson sequence, it is ideal to administer the Pre-test prior to these lessons and the Post-test the class session after the final neighborhood ride.



# Overview of cycling program

BACKGROUND

LESSON

## Seven lesson overview (for 1:20-minute classes)

### **LESSON 1** *In-class*

#### **Bicycle ridership and safety** *Page 1, 29*

Introduction: Program overview

Pre-test

*Optional:* Introduction to investigation

Video

Laws / traffic signs / Right-of-way / Riding on the road and through intersections

Common reasons for collisions

### **LESSON 2** *In-class*

#### **Helmets, gear and bike parts** *Page 13*

*Optional:* Melon drop

Survey

Fitting helmets

Bike parts and components

Bike gear

*Optional:* Bicycle investigation

### **LESSON 3** *In-class*

#### **Traffic simulation, laws and repair** *Page 27, 38*

Fixing flat tires

Hazard identification

Laws revisited

How to drive a car / bike

*Optional:* Video

### **LESSON 4** *In-class/Playground*

#### **Fitting bikes, controlling, stopping and signaling** *Page 35, 45*

Proper fit of bicycles

Basic bicycle maintenance check

Helmets (revisited)

Stopping

Slalom

Learning to look back: Riding with one hand

Scanning and signaling

*Optional:* Gearing

*Optional:* Snail race

*Optional:* Follow the leader

### **LESSON 5** *Street*

#### **Riding with traffic** *Page 55, 63*

Predictability: Riding on the right

Exiting driveways

Introduction to intersections

Moving through intersections

Three left turns

Intersections: Putting it all together

### **LESSON 6** *Playground/Street*

#### **Neighborhood bike ride / Bike rodeo** *Page 79*

Discussion: Physically fit lifestyle

Neighborhood ride

Bicycle rodeo

### **LESSON 7** *Playground/Street*

#### **Post-test / Neighborhood ride** *Page 85*

Post-test / Evaluation

Neighborhood ride

# Bicycle ridership and safety



## LESSON 1

? 5 MINUTES	<b>Introduction: program overview</b>	2
? 5 MINUTES <i>Optional</i>	<b>Bicycle investigation</b>	3
! 15 MINUTES	<b>Pre-test</b>	4
! 12-18 MINUTES	<b>Video</b>	5
? 5 MINUTES	<b>Why do we have traffic laws?</b>	6
? 5 MINUTES	<b>What are the traffic laws?</b>	8
! 10 MINUTES	<b>Riding on the road and through intersections</b>	9
HOMEWORK		
\	<b>Journal</b>	12

### EQUIPMENT

- Parent introduction letter / permission slip
- Video: *First Gear*
- Pre-test (1 per student)
- Chalk/chalkboard

### OVERVIEW

#### Purpose:

This lesson introduces traffic laws, the basics of bicycling in traffic and proper cycling conduct.

#### Topics covered:

- Introduction
- Basic bicycle etiquette via video
- Traffic laws
- Intersection behavior
- Traffic signs

#### Options:

Teachers may also consider contacting the local branch of Trauma Nurses Talk Tough (TNTT) to get an assembly presentation to kickoff a bicycle safety week. The TNTT presentation is not part of the curriculum. TNTT, the Bicycle Transportation Alliance or another advocacy organization may also conduct at-cost helmet sales. Teachers must promote the helmet sales to their own and other classrooms prior to the sale to ensure their students bring money (see page 89 for resources).

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies
- Predict consequences of behaviors

#### Physical education

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities / situations

# Bicycle ridership and safety

BACKGROUND

LESSON

**WHAT:** A brief description of the ten day program and an optional investigative theme that may accompany the program.

**PURPOSE:** To briefly introduce the students to the Bicycle Safety Program.



## PROGRAM OVERVIEW AND INTRODUCTION TO INVESTIGATION

Introduce the Bicycle Safety Program (BSP) to the students. The following paragraphs will provide ideas for introducing the BSP:

The BSP is a hands-on curriculum with in-class lessons and on-the-bicycle training that will be done outside. We will have various speakers and people helping out including: police officers, a person (name) from an organization that advocates for bicycles — the Bicycle Transportation Alliance (BTA) — and other people to help us learn about cycling. Helmets will be for sale for \$5-8. We will have a bike to school day, an assembly, and after school rides (announce only if these will actually happen).

Distribute permission slip to all students. They are required to get the slips signed by a parent or guardian and returned. See sample in *Handouts*, page 99.

The first four lessons (in-class lessons) will teach us how to “drive a bike”. We will learn some basic laws and skills that teach us how to drive. Yes, the same rules apply for driving a car and riding a bike. Safety rules include: stopping at stop signs, riding on the right side of the road and using hand signals. In the last six lessons, we will go outside and ride bicycles. We will learn basic riding skills, including: riding with one hand, quick stops and quick turns, and how to properly ride in traffic, again — how to drive a bike!

If the class performs well we will go on rides through the community.



## BICYCLE INVESTIGATION

### *Optional theme*

In addition to learning how to ride bikes we are going to launch an investigation to study our school's travel and bicycle behavior. Do our schoolmates ride bikes to school? We will go and measure the daily bicycle ridership to school (activities that involve charts and graphs, see *Handouts* chapter) and then promote cycling; we will observe changes in travel behavior. We will also investigate other facilities that influence bicycling, e.g. does our school have a safe place to park our bikes? Is it easy to bike to school or is there too much traffic? We will figure out ways to make our school a better place to bike. We will try to implement some of these solutions during our bike-to-school day promotion and by talking with the principal about the need for such changes.

For additional information on promoting bicycling to schools, contact the BTA at (503) 226-0676.

# Bicycle ridership and safety

BACKGROUND

LESSON

**WHAT:** A written test to test the knowledge of the students prior to the implementation of the curriculum.

**PURPOSE:** The pre-test is strictly for informational purposes. It will be graded and evaluated in comparison with the post-test.



## PRE-TEST

**1** Introduce the pre-test. Ask students if they know what a pre-test is; what is a post-test? Tell students they have 15 minutes to complete the pre-test which will be graded but just for informational purposes, it will not reflect on their grade. At the end of the curriculum, we will then take the EXACT SAME TEST and compare their grades to that of the pre-test. This process will allow us to evaluate the effectiveness of the curriculum. In other words, we are testing you on your knowledge and testing ourselves on how well we are teaching you.

**2** Administer the pre-test. Give them 15 minutes. Many students will not finish, advise them to skip questions that they do not know at all and go back if they have time. This is good test-taking practice.

*Note: Consider administering the Pre-test prior to the arrival of the BTA instructor to save time.*





## BICYCLE VIDEO

### MATERIALS

- *First Gear* (21 minutes)

1 *First Gear* is a 21 minute bicycle safety video designed for 10 year olds and up. The video moves sequentially, starting with bicycle safety checks, equipment and gear before discussing traffic safety. The video focuses on traffic laws to teach cyclists how to be safe and predictable cyclists. The video introduces terminology that will be used throughout this curriculum in order to convey basic traffic concepts.

2 Discuss the video for a few minutes afterwards. Include the importance of riding by the laws: riding by the laws makes you safe and predictable so you do not get into crashes with cars. The helmet aspect of safety is taught in *Lesson 2*.

Ask the students to tell you a new concept they learned from the video. It is also a good idea to review hand signals with the class.

### OTHER VIDEOS (SEE RESOURCES, PAGE 96, FOR ORDERING INFORMATION):

*The Bicycle Zone* (3 - 5th grade)

*Pedal Smarts* (5 - 7th grade)

**WHAT:** Show the class a bicycle safety video and discuss.

**PURPOSE:** To introduce new bicycle safety and helmet safety issues to students. Concepts will be applied later in curriculum in order to properly learn to ride bicycles on the road.

First Gear can be obtained through the Bicycle Transportation Alliance, (503) 226-0676, or [www.bta4bikes.org](http://www.bta4bikes.org)

# Bicycle ridership and safety

BACKGROUND

LESSON

**WHAT:** A discussion about laws, enforcement and punishment. A second discussion explains the traffic laws that bicyclists must follow.

**PURPOSE:** Teach students about laws so they will understand the consequences of violation and abide by them generally. Teach students traffic laws and regulations so they will be safer riders and avoid potential crashes.

Users of the road must be aware of the traffic that is around them. As has been discussed in the video, bicyclists generally ride on the right side of the road. When changing lanes or preparing for a left hand turn bicyclists look back into the lane to see if any other traffic is there.

**Looking back:** explain the scenarios where you use looking back by drawing a two-lane, two-way street with intersection on the board. Demonstrate that the cyclist is riding in the right lane in position 3 for a left hand turn and wants to move into position 1 for a left turn. The cyclist must:

- First look for traffic by looking behind.
- If no traffic, the bicyclist signals left and looks back again.
- Then moves through position 2 into position 1.
- Stop at the stop sign and follow right-of-way rules.
- Finally, the cyclist signals left and turns from position 1 into position 3 on the adjacent street.

## Traffic laws



### WHY DO WE HAVE LAWS?

*Question:* What is a law?

“A rule or regulation set up by a government to be followed by all of the people...”

There are many different types of laws. Some laws are made to prevent people from stealing and for punishing them if they do...Some laws are made to help keep people safe and healthy....

The logic behind a law is to set rules that we are supposed to follow. The rules are generally set up so people can remain safe and healthy.

*Example:* One example is the requirement that people must have a driver's license before driving a car.

This law ensures that people understand the rules of driving and that they should drive safely so they do not crash and kill someone. Another example is a law that prohibits drunk driving. A drunk driver is a person who has consumed alcohol and then drives a car. Alcohol decreases people's reaction speeds and ability to make decisions, increasing the chance for a crash and thus making it very dangerous to drive.

Of course there are certain consequences to breaking laws. Because it is very dangerous to drive while under the influence of alcohol, when drunk drivers are caught they are usually arrested, go to court and often go to prison and lose their drivers license. If they crash and hurt or kill a person they may go to prison for many years.

There is also a law REQUIRING people under that age of 16 to wear a bicycle helmet whenever riding a bike. The penalty for this offense is a \$50 fine. That is a lot of money to pay for not wearing a helmet. But how often do the police enforce this law? (explain enforcement; use their bed times or eating their vegetables as an example). So enforcement and severity of punishment are two major considerations when thinking about our laws.

Let's look more closely at these laws so we can all get a better understanding of laws:

Law: Must wear a bike helmet.

Reason: To protect our heads.

If violated: \$50 fine

Law: Must stop at a red light.

Reason: There are certain traffic rules that everyone follows and if you violate them you put yourself and other people in danger.

If violated: \$150 fine; if you cause a crash you might have to pay for the other person's property. If you kill another person, motorist, bicyclist or pedestrian, you may have to go to prison even if you didn't mean it.

Law: No drinking and driving.

Reason: To prevent crashes due to drivers who are intoxicated and operate a vehicle.

If violated: Possibility of paying a \$1,000 fine, losing driver's license, and going to prison.

Why do different laws have different punishments? If a law has a lesser punishment than another, are they both important?

Being responsible for your actions is called liability. You are responsible (liable) for the way you behave and if you break a rule you may go to the principal's office, get detention, etc. Liability is important because if you injure someone or their property and break the law, you are liable for the damages.

*Example:* you don't stop at a stop sign, and get into a crash.

This means that you may have to replace their property, pay for a doctor, pay a fine, or go to jail.

SO, laws are put in place to create order, to keep us safe and protect our stuff. In traffic, laws are essential so others can predict what we are going to do. Bicycles must ride like all other vehicles to remain Predictable and Safe!

### Vocabulary for bike laws

**Law:** a rule or regulation set up by a government to be followed by all of the people.

**Enforcement:** the actions taken by police officers or other persons instructed to make sure people do not break rules or laws. For example, a referee enforces the rules in a basketball game and calls a foul if rules are broken.

**Severity of punishment:** the degree of punishment one may receive when violating a rule or law. In a basketball game the team often gets foul shots when a rule is broken. A \$50 fine is the punishment for not wearing a bicycle helmet.

**Liability:** to be responsible for an action. You are responsible (liable) for the way you behave and if you break a rule you may go to the principal's office for a punishment.

**Be predictable:** to act so other people will know what you are going to do. "You are so predictable, you always want pizza for dinner." Bicyclist must travel in a predictable manner so other motorists and cyclists know what they will do. Predictability prevents crashes.

# Bicycle ridership and safety

BACKGROUND

LESSON

## The five key rules for bikes

- 1 Ride in the Same Direction as Traffic
- 2 Obey All Traffic Signs
- 3 Ride on the Road
- 4 Use Hand Signals
- 5 Stay to the Right

**ORS** means Oregon Revised Statute.

Skateboards, rollerblades and scooters in some areas have the same responsibilities as bicycles, which means that they have to follow the rules of the road, not act like a walker. This means that they have to give audible calls when passing walkers on the sidewalk and have to be especially careful when traveling across intersections because cars do not expect people in the crosswalk to be moving quickly through the intersection.



## WHAT ARE THE TRAFFIC LAWS?

Bikes generally must follow the same rules of the road as automobiles. Therefore when we teach you the rules of the road for bicycling, you are also learning how to drive a car. Riding on the sidewalk is dangerous and is only recommended for children ages 9 and under.

A “bicycle” means a vehicle. *ORS 801.150.*

Helmets always first. The Helmet Law: “A person commits an offense... if the person is under 16 years of age...operates or rides a bicycle...on premises open to the public and is not wearing protective headgear.” *ORS 814.408, Section 2.*

Bicycles must act like cars. “Every person riding a bicycle upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of any other vehicle.” *ORS 814.400.*

There are some valid reasons for riding with traffic/like an automobile:

- The law requires cyclists to ride with traffic (in the same direction as cars).
- Motorists do not expect to see traffic coming in the opposite direction. In order to be seen bicyclists must ride where motorists expect to see traffic, on the right.
- Wrong-way riding results in nearly one fourth of all car/bike crashes.
- Traffic control devices (i.e. stop signs and traffic lights) face the normal flow of traffic.
- Cyclists who ride with the traffic, on the right, face the danger of a head-on crash with a wrong-way rider.

Bike lanes. In Oregon bicyclists are supposed to ride in bike lanes when they are provided unless when turning or if the bicyclist doesn't feel that it is safe. While in the bike lane, bicyclists possess additional right-of-way privileges. In fact, bicyclists can legally pass on the right side of cars and cars are not allowed to turn in front of bicyclists in bike lanes. Bicyclists should still remain cautious of cars when in bike lanes.



## RIDING ON THE ROAD AND THROUGH INTERSECTIONS

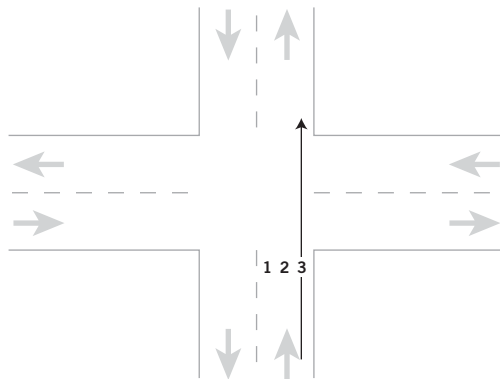
### MATERIALS

- Intersection overhead (see page 99, *Lesson 4*)
- Intersection worksheets, 1 per student

① As said above, bicyclists must ride on the right. But what happens when they travel through intersections? We will draw the proper road positioning for each type of turn.

② Teachers should draw intersections or use the intersection handout (see page 99) to make an overhead or worksheets for students to label along with them. Each lane of travel should be labeled with three positions, 1 (inside), 2 (middle), 3 (outside or right) and the direction of travel should be indicated. When demonstrating turning, show normal placement of travel (on right), and then proper turning positions. Follow the below examples.

### *Intersection 1. Straight*



*The bicyclist normally rides in position 3, 3 feet from the curb, and remains in position 3 when going straight through an intersection. Bicyclists often move into position 2 when there are parked cars or hazards on the side of the road.*

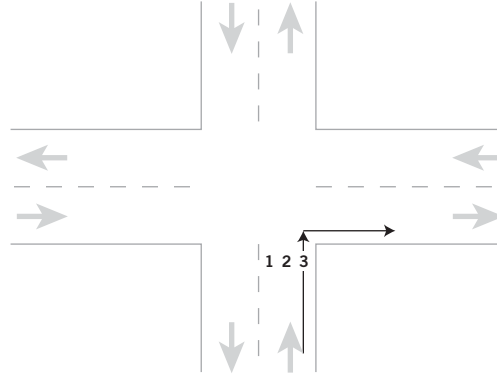
# Bicycle ridership and safety

## BACKGROUND

Lane striping on a one-way street is usually a white dotted line in the middle of lanes; two way streets have yellow lines in the middle separating travel directions.

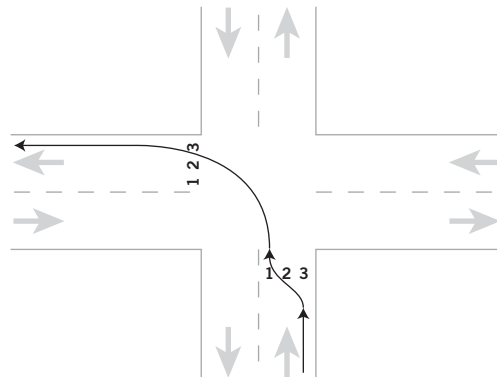
## LESSON

### Intersection 2. Right



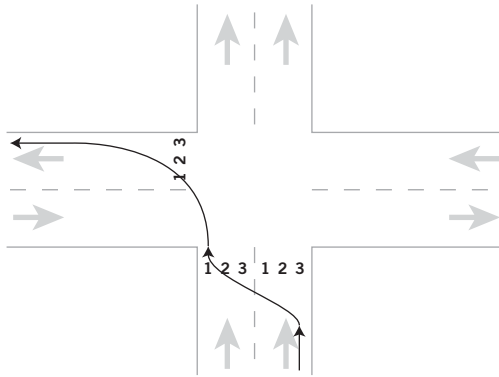
*The bicyclist normally rides in position 3 and remains in position 3 when turning right through an intersection.*

### Intersection 3. Left



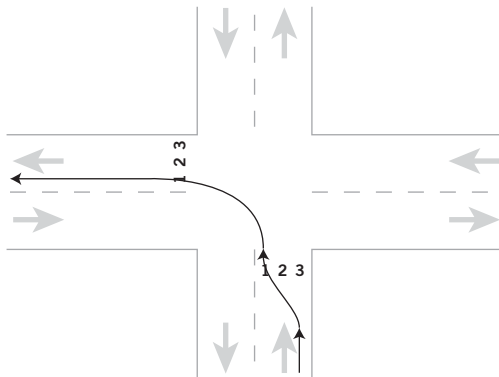
*The bicyclist normally rides in position 3 but when turning left, they must move to position 1. To get to position 1 they must look back and check for traffic, signal left and then signal again before turning. They complete the turn at position 3.*

### Intersection 4. Positioning and left turns on a 2-lane, one-way street



The bicyclist normally rides in position 3 but when turning left, they must move to position 1. When riding on a one-way street, they must get to position 1 the left lane, the one closest to the turn. If they turn from the right lane, they may be hit by traffic on the left.

### Intersection 5. Example of an incorrect left turn



A common mistake that students make when completing the turn is to turn from position 1 into position 1. It is important to emphasize that this is dangerous, as it puts the cyclist close to oncoming traffic and into the path of cars from behind.



# Bicycle ridership and safety

BACKGROUND

LESSON



## NARRATIVE WRITING

We are going to create a journal or add to existing journals for the BSP.

### *Journal Topic*

Describe how I normally get around. How do I go to school? My friend's house? To the park? By bus, bike, walking, car. Which way do I like best? Why? Why don't I like some ways?

# Helmets, bike gear and parts



## LESSON 2

? 5 MINUTES	<b>Importance of the brain</b>	14
! 5 MINUTES <i>Optional</i>	<b>Melon drop</b>	16
! 30 MINUTES	<b>Helmet fitting</b>	17
! 5-10 MINUTES	<b>Signs</b>	19
! 10 MINUTES <i>Optional</i>	<b>Bike parts and components</b>	20
! 10 MINUTES	<b>Bike gear</b>	21
\ HOMEWORK	<b>Journal</b>	22
? 20 MINUTES <i>Optional</i>	<b>Bicycle investigation</b>	22
! 15 MINUTES <i>Optional</i>	<b>Survey overview; survey</b>	24

### EQUIPMENT

<i>Helmet Drop</i>	• Tape measures (15)
• Melon	• Pre-test score sheet to grade class
• Bicycle helmet (can be fairly old)	<i>Other Gear</i>
• Small tarp / trash bag	• Bike parts worksheet
• Rags for cleaning	• Night and rain gear
<i>Helmet Fit</i>	• Bicycle
• Bicycle helmets (30-40, various sizes)	• Pannier
• Helmet fitting brochure (15)	• Bike stand ( <i>optional</i> )
	• Sample of bicycle system

### OVERVIEW

#### Purpose:

Students learn the importance and proper fit of bicycle helmets in order to reduce fatal crashes. Familiarize students with bicycle parts and gear for proper use and safety.

#### Topics covered:

- Helmet use and fit
- Bike parts
- Other gear
- Survey

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies

##### Safe and healthy environment

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

##### Informed consumer

- Analyze influences of culture on health related products as a consumer

#### Physical education

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities / solutions.

# Helmets, bike gear and parts

BACKGROUND

LESSON

**WHAT:** A discussion of the importance of the brain and its functions.

**PURPOSE:** This discussion informs students of the reasons why brains are so important to protect with a helmet.

## Helmets



### IMPORTANCE OF THE BRAIN

Ask the question: “what do you all think the most important part of the human body is?” The brain is the most or equally as important as any other part of the human body. Let’s discuss why.

The brain is the central control station for the whole body. Like a computer’s hard drive, the brain controls all functions of the body, even ones that you don’t realize. The brain obviously is our thinking tool and is the thing that enables us to read and do exciting things like math (most exciting). But the brain also controls our ability to speak, walk, talk, laugh, cry, dance, kick, coordinate ourselves to play basketball, video games, ride a bike, and much more. Without our thinking about it, our brains also tell our bodies when we are hungry, control our breathing, digestion, chewing, all muscular movements, and other things like peeing, pooping, sneezing, and coughing. Yes folks, the brain is pretty important.

Not only is the brain super important, it is also delicate. That’s why it is in that thick skull of mine (pretty thick!). The brain has consistency similar to jello and unlike other parts of us, can not repair itself. For example, if we cut our finger what happens? We bleed, our blood clots up and stops the bleeding and eventually we get a scab, probably pick it off 15 times, and eventually your finger is as good as new. Though sometimes these cuts are beyond repair, have you even seen someone with only four fingers or one leg? Well, those injuries were probably really big and maybe even very bloody. To injure our brain permanently it does not require a big bloody injury. Some people have permanently injured their brains with by hitting their heads on the ground, no blood. In fact, any injury to the brain is very, very difficult to repair.

What does brain injury mean? It could mean a lot of things because your brain controls so much. It could mean you lose your memory. Maybe you lose your ability to speak or walk. How would you feel if you couldn't play basketball anymore, not because your body wasn't good but because your brain couldn't figure out how to walk?

This is why people wear helmets. As you know, not only bicyclists wear helmets but many sports and professions require helmets. Can anyone name some? Sports include: biking, boarding, bledging, football, baseball, hockey, rock climbing, bungee jumping, skiing, luging, motor cycle and car racing, and some boxing. Professions that use helmets include: construction, jet pilot, astronaut, motorcycle police officers, and firefighters.

Helmets are a commonly used by many people for good reason. In Oregon, it is the law for people under 16 to wear a helmet when they ride a bike. In this course everyone will wear a helmet.

Research shows that up to 90 percent of deaths from bicycle crashes are the result of head trauma. A properly worn and certified bicycle helmet cushions and protects the head from damaging impacts with hard surfaces such as asphalt and concrete. Scientists measure how hard something hits something else with "g forces". Things that hit hard have a high g force and high potential for damage. 300 g's is enough to cause permanent brain damage. 500 g's can fracture the skull and cause death. The head of someone who falls from bicycle height to a concrete surface can receive a force of more than 1800 g's. CPSC approved helmets can reduce the 1800 g's of bicycle falls to less than 200 g's, which is not enough to fracture a skull. Many doctors agree that if all bicyclists wore helmets, 75 percent or more of bicycle-related deaths would be eliminated.

*(Florida, Traffic Safety Curriculum)*

# Helmets, bike gear and parts

BACKGROUND

LESSON

**WHAT:** An activity where the teacher drops a melon to simulate impacts of bicycle crashes on the head and brain.

**PURPOSE:** This activity demonstrates the importance of wearing a bicycle helmet to reduce the severity of head injuries.



## MELON DROP

*Optional*

.....  
**MATERIALS**

- Waterproof barrier (plastic bag) and napkins for cleaning up
  - One head-sized honeydew melon (ripe)
  - Chair to stand on
  - ASTM, ANSI and/or SNELL approved bicycle helmet
- .....

The first drop is with a helmet (and the melon shouldn't break) and the second without the helmet, when the melon should break.

- 1 Teacher gathers materials.
- 2 Explain that the melon simulates the human head, the fruit and seeds inside are the brain. Yes, heads are fragile. If they hit a hard surface they could crack and your brain could get injured. Discuss the concept of force, that your head receives force upon impact and how a helmet can reduce that force.
- 3 Cover the hard floor surface with the cut trash bag. The teacher (or student standing on a chair) will strap the melon in a helmet and drop it six feet onto a hard surface. The class will observe the results. The melon should not break, and this will demonstrate the fact that the head was saved because the helmet absorbed the force of the fall. If the melon gets injured, the teacher should note that even with a helmet, heads can get injured — but watch to see what happens when we drop it without any helmet.
- 4 The melon is then dropped six feet without a helmet. It should break and this is because it received the full amount of force from the fall. Heads are fragile: they may crack and you may get permanent brain damage because of high-impact falls. If the melon does not break, it will bruise and that will show up in a few days. Look for a soft spot. That type of damage may still cause permanent brain damage.

### Vocabulary

**G-forces:** a measurement scientists use to indicate how hard one object hits another.

**Bicycle helmet:** equipment used to protect a person's head. Reliable helmets should have the CPSC sticker of certification inside. Properly fitting helmets should be snug and cannot slide about.

**Crushable liner:** the inner portion of a helmet that absorbs and reduces g force to the head.



## HELMET FIT

### MATERIALS

- 40 CPSC-certified helmets of various sizes (for 5th and 6th graders, we recommend the majority of helmets to fit 22" – 23 1/4" head circumference)
- Copies of the ODOT helmet fitting brochure (see page 94)

**1** When going to test helmet fit use the following checklist to ensure that the helmets fit right (see page 94 for the helmet-fitting brochure information).

- The helmet must be level on students' heads so that it covers their foreheads.
- The helmet should be snug and not wobble excessively side to side.
- Students should not be able to put more than one or two fingers through the chinstrap.
- Students should not be able to push the helmet more than two inches straight back.

### *Properly fitting a helmet*

- 1** To properly instruct the students how to put on a helmet, the teacher should demonstrate on themselves. See below for a sample dialogue. See the helmet brochure for more detailed information.
- 2** Students will pair off with one other person near them.
- 3** Students can normally identify the size of their head in relation to the class (often correlates to height and weight). Ask students what size head they think have? Most students will be a medium except for large or smaller students. Have students retrieve their respective size.
- 4** Follow the brochure: they select a helmet that fits and put it on—try to move it from side to side. If it moves A LOT it is too loose. Try putting in thicker head pads. If the helmet does not go on, it is too small (*Note: Helmets have adjustable pads. New helmets in the box are always equipped with the smallest size pads.*)
- 5** Helmets should cover the forehead and should rest only be about an inch above the eyes. When looking upwards, wearers should be able to see the front of the helmet clearly.

**WHAT:** Read the essential components of helmet fit and have the students properly adjust their helmets.

**PURPOSE:** Students will learn to fit a helmet properly.

Helmets protect your head from the impact of crashes. It is essential to put them on properly. Helmets must be snug so they don't slide off the head. Helmets should have a slick surface so they will slide, not stick, when they hit the ground. Protecting the front of the head is most important when using bicycle helmets. During crashes, bicyclists generally go forward and hit the front of their head. So, it is essential that the helmet is always strapped, and that it cover the forehead and can not be easily pushed back on the head.

To assist with smooth implementation, teachers should organize helmets by sizes so students can easily find the size they need.

# Helmets, bike gear and parts

## BACKGROUND

For helmet statistics, see *Background* to “Melon Drop”.

Transmission of lice from helmets can be a concern. Since helmets are generally stored in large bags between class periods, teachers might require each student to have a separate bag that they store their helmet in and tie or rubber band it shut. In this case students should write their name on masking tape and attach it to the bag. After the bike safety class is complete, helmets should be stored in an air-tight bag for two weeks in a dark location. This will kill all lice and their eggs. Lice spray that can be purchased at most drug stores can also be used to disinfect helmets.

## LESSON

- ⑥ Start with the hollow buckle, put the buckle under the chin and adjust the slide adjuster buckle so the ear is between the two straps and slide adjuster is near the point of the cheek bone (will vary among students).
- ⑦ Do the same with the pronged buckle.
- ⑧ The chin strap should be snug, you should only be able to put one or two fingers between strap and chin. Tighten the chin strap.
- ⑨ You should not be able to move the helmet more than an inch back on your head. If you can, the buckles of the helmet strap should be moved forward on the face.

Have each student put their name on tape and place it on borrowed helmets so it can be used in future lessons. Place helmets in a class bag or some other easily retrievable location.

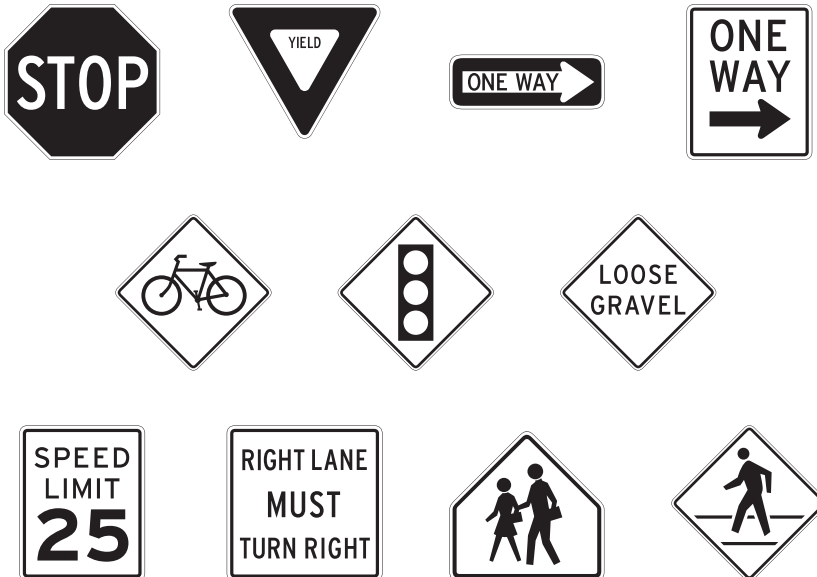




## SIGNS

- 1 Allow students to come to the board and draw any street sign that they know.
- 2 After a couple of minutes, have them sit down and discuss each sign.

Make sure to discuss: stop signs, yield signs, one way signs, traffic lights, speed limit signs, school crossing signs, no right/left turn signs, and signs indicating that multiple lanes must turn a specific direction. Some of these are pictured below.



**WHAT:** A brief activity to introduce a variety of traffic signs.

**PURPOSE:** Understanding street signs is essential to following traffic rules.

# Helmets, bike gear and parts

BACKGROUND

LESSON

**WHAT:** A discussion and worksheet activity to teach bicycle parts.

**PURPOSE:** Understanding the parts of the bicycle will allow you to maintain your bicycle in order to keep it safe and help you know what to get it fixed.



## BIKE PARTS AND COMPONENTS

**MATERIALS:**

- Handout: Bike Parts (see page 99)
- Pencils
- A bicycle: to show what you are talking about for this lesson
- A frame without parts and wheels; the separated components (example: the braking system — a connected brake lever, wire/housing, and brake shoes) (*Optional*)

**1** Discuss the following topics: *What is the Frame? What are Parts/Components?*

The bike frame is the section of your bike that is completely fused together, the body of the bike. Bike parts and components include all other pieces that hold the bike together (example — forks, tires, pedals, crank arms) and those adjustable parts (example — brake levers, shifters, derailleurs).

**2** Distribute the handout to students. Instruct students to identify 20 bicycle parts and put each corresponding letter next to the part. If need be they can draw a line to the part and write the corresponding letter next to the line.

**3** Students should be told to work on the sheet by themselves at first. Allow students to look at and touch the real bikes and bike parts. After a few minutes, allow students to work together.

**4** Present the list. After about five minutes (or when students are done), have about five kids, or one per table, go to the bike and point out each part/component of the bike.

**5** Teacher reiterates the parts.

**6** Have a short break to allow kids to hand in their lists of parts.

**7** Quickly, the teacher should then reiterate the bicycle parts, having students call out the correct answer for each part.



## BIKE GEAR

### MATERIALS:

- Lighting — headlight, taillight, reflectors, reflective vests and pant straps
- Commuting — bike rack, panniers, back pack, horn
- Rain — fenders, rain pants, jacket, gloves
- Repair — patch kit, tire levers, pump (see *Lesson 3, Repair*)
- 1 bicycle — should be equipped with many of the above items

### *Nighttime Wear and Lighting*

Students should avoid riding at nighttime because it can be dangerous. If they do need to ride at night, it is very important to have equipment that will help make them visible to other cars, etc.

Demonstrate nighttime equipment. Nightwear must include lighting and reflection, and riders should wear retro-reflective clothing. It is the law to use lighting at night including: a front white headlight that is visible from 500 feet and a rear red taillight or reflector that is visible from 600 feet when shone upon from an automobile's low beams. Generally, lights are better, and reflectors should be used in addition to lights.

### *Riding in the Rain*

In many areas of Oregon, it rains all winter so we should be prepared so our clothing is not wet all day.

A good jacket and fenders are probably the most important way to stay dry. Rubber jackets are on sale for about \$25 in many sporting goods stores. Other equipment includes rain pants, boots and gloves to protect from the rain. Parking your bike underneath a covered area is always helpful.

### *Commuting — Riding to School*

Riding to school is definitely fun and a really good way to get a workout. (Teachers, do you ride to work? Tell the story). It is good to get proper gear for carrying your lunch, gym clothes, etc.

You can buy a bike rack and special bags that clip on called panniers. They can be normal or waterproof and often very expensive. A book bag also works really well, either a back pack or shoulder briefcase style, as long as you have both hands free to ride the bike. Don't forget your jacket and helmet.

### *Repair Tools*

You should carry repair tools, especially if travelling long distances. We will go over this when fixing a flat.

Quickly show repair tools — pump, repair kit, tire levers.

**WHAT:** A brief discussion about the gear used by bicyclists including tools, rain gear and nighttime gear.

**PURPOSE:** Students become familiar with the gear that is important for riding at night and in rain, and gear that improves safety.

### **SMALL TOOL BAG:**

- patch kit (patches, glue and sandpaper)
- y-wrench
- rag
- tire irons
- small flat-head screw driver
- Band-aids
- duct tape
- important hex-keys
- pump (normally on bike)

# Helmets, bike gear and parts

BACKGROUND

LESSON



## JOURNAL ASSIGNMENT

Have students write about a bicycle crash they had. Include how and when it happened, whether they got hurt, whether they wearing a helmet, and what parts got messed up. Ask them how it made them feel. Were they afraid to ride a bike afterwards? Etc.



## BICYCLE INVESTIGATION

*Optional discussion*

Advertisers believe that promotion will influence the behaviors of individuals. If we promote bicycling, more students might ride to school. Of course there are other factors. These might include permission from our parents, the quality of the bicycle lockers, weather, and the bicycle friendliness our streets. For the next two weeks (or longer), we will keep track of bicycle ridership and observe changes because of promotion or other reasons (i.e., weather, secure bicycle parking, contest).

### *Measuring Our Class' Ridership*

- 1 Ask the class: who biked yesterday?
- 2 Who biked today? (use the results from the above survey or ask class)
- 3 The class should keep a daily count of bicycle ridership among the class and by counting the number of bikes parked at the bike racks, chart and graph the information (see *Handouts*, page 99).
- 4 The teacher should actively promote cycling to school and the class should keep track of their ridership. Teachers can run a contest to see who rides the most or if the class can reach a certain percentage of students riding to school.

### *Promoting and Measuring School Ridership*

Our next step is to promote bicycling throughout the entire school. There are many things we can do, some are simple and some are time intensive. During any of these activities, the class should count the bicycles parked at the school each day.

- ❶ Promote bicycling via flyers around school and student-made posters that discuss bicycle laws and safety rules (minimal amount of work). Talk with the principal and other teachers about promoting cycling and increasing student ridership. Set up a Trauma Nurses Talk Tough assembly (the teacher may have already done this).
- ❷ Have a Bike to School Day (medium amount of work). First discuss the concept with the school administration and let them know your class wants more students to ride because it is healthy and environmentally friendly. Post flyers around the school promoting a one-time event which students are invited to bike to school a half hour early (helmets required). Offering bagels or other treats, raffles (water bottles, helmets, patch kits, etc.) and a speaker who talks about cycling can be effective promotion. If parking security is a problem, offer a secure parking alternative. Get other teachers promoting the event to their students. A student announcing the event to each classroom helps too. Lastly, consider putting on a bike rodeo after school with the help of teachers, the local bike shop and community volunteers.
- ❸ Conduct a survey (a lot of work) of schoolmates. Ask why they do or don't ride to school. Analyze the information with charts and graphs. Make recommendations and write a letter and make presentations to school administration, city officers, city planner, or a local safety police officers. See page 92 and *Handouts*, page 99, for more information on developing a survey. Consider then conducting a school-wide promotion campaign (see numbers ❶ and ❷ above).

# Helmets, bike gear and parts

BACKGROUND

LESSON

**WHAT:** Conduct a survey about bicycle ridership and discuss bicycle behavior among students. Discuss surveys, discuss problems with surveys.

**PURPOSE:** This activity increases the awareness of bicycle behavior for students and teachers alike. The questions here will be used to generate discussion around bicycle use throughout the curriculum. The lesson also teaches about the uses and weaknesses of surveys.

This background information can be used in a discussion period after the surveys are conducted.

Surveys have strong and weak points. Below are listed the strengths and weaknesses.

**STRENGTHS:** the benefits of surveys as opposed to other methods of collecting information.

*Ease of implementation:* It is easy to administer surveys and they do not cost a lot of money; therefore we can ask a lot of people a lot of questions. Other methods of collecting information are not so easy. Interviews take a long time so you can't ask as many people the for the same information. An interview is another way to get information, but you ask one person questions and they can respond in depth.

*Analysis:* It is usually easy to interpret the information. So, if we ask, "who biked today," it is easy to count the responses and develop conclusions.

*(continued next page)*



## SURVEY OVERVIEW

*Optional*

Surveys are a tool used to study and gather information about people, their behaviors, animals, materials, etc. When conducting personal surveys you use your survey questions and ask people for information about themselves. Our class will read survey questions and the students will respond. We will then learn information about our bicycles and our riding habits.

What will we do with the information? Results of surveys can have many uses for many people. If we find that many students would ride bikes if we had better parking we might give the results to the principal and ask for good bike racks. If we find that it is too dangerous to ride, we might contact city planners and discuss making the streets safer.



## SURVEY

*Optional*

.....  
**MATERIALS:**

- Survey questions (page 26) cut into eight rectangles
- .....

- 1 Select a student who will record the results of the survey (provide them with a scoring sheet to save a minute or two, page 99). That student must make three columns: a) “question numbers,” b) “yes,” and c) “no” column. Next to each question number they should record the number of “yes” and “no” answers.
- 2 Count the number of students in the class. Tell the number to the class and have them remember it.
- 3 Distribute the survey questions to the class. Try to give one per table. Students should not look at the questions until their number has been called.
- 4 In numerical order, a student from each table will read a question out loud to the class. Students answer by raising their hands for either “yes” or “no” (students should not answer both yes and no).
- 5 As you are going through the survey, tally to make sure the “yes” and “no” add up to the total number of students in the class.
- 6 Briefly discuss the intricacies and inaccuracies of administering a survey (example: students want to look cool and don’t answer truthfully). See *Background* column for details.
- 7 Discuss results. Who rides to school and who would like to ride if they could? If any students have crashed their bikes, how did this make them feel? What would have to change for them to ride to school?

*(continued from previous page)*

**WEAKNESSES:** problems, including things that lead to inaccurate data collection

*Participation:* did everyone answer the questions? Did anyone answer twice? It is important that everyone answers or we may have inaccurate information. Example: If people who don’t own bikes are afraid to answer, we will think everyone owns a bike

*Accuracy:* was everyone honest? Sometimes people don’t really mean to, but answer inaccurately. Example: How often do you eat french fries? Because we know fries are unhealthy we might answer twice per month when it is really twice per week. Inaccuracy can also occur because we don’t remember, or because we answer based on our ideals instead of our actions and influences (see below).

*Influence:* another aspect of accuracy – did you answer improperly because you didn’t want others to know that you eat fries for every meal?



# Helmets, bike gear and parts

BACKGROUND

LESSON



## STUDENT SURVEY QUESTIONS

### MATERIALS

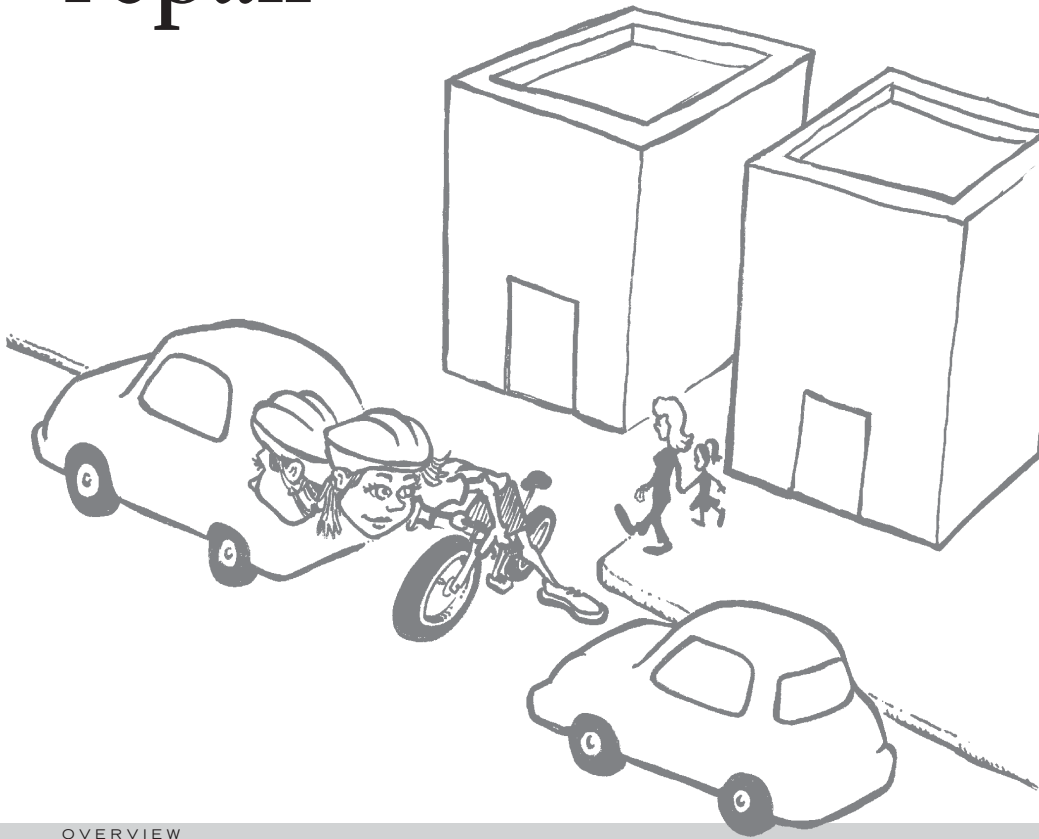
- Scissors

- 1 Photocopy this set of questions.
- 2 Cut them apart.
- 3 Place the appropriate number on the front of each piece of paper.
- 4 Have one student read out each question and the class will respond to each question by raising their hands for either “yes” or “no”.
- 5 The teacher should select a student to record the class’ answers on a separate sheet of paper.

## SURVEY QUESTIONS

- 1) Who owns a working bike that they can ride?
- 2) Who rode their bike or someone else’s bike during the summer?
- 3) Who has ever crashed on their bike?
- 4) Who has ridden their bike to school this year?
- 5) Who rode their bike today?
- 6) Who wears a bike helmet?
- 7) Who would ride to school if they could?
- 8) Who would like to ride bikes as an after school activity?

# Laws, hazards and repair



## LESSON 3

? 10 MINUTES	<b>Rules of the road revisited</b>	<b>28</b>
? 10 MINUTES	<b>Common reasons for collisions</b>	<b>29</b>
! 10 MINUTES	<b>Hazards identification</b>	<b>30</b>
! 20 MINUTES	<b>Fixing a flat tire</b>	<b>31</b>
! 12-18 MINUTES <i>Optional</i>	<b>Bicycle video</b>	<b>33</b>
<b>HOMEWORK</b>		
	<b>Journal</b>	<b>33</b>
? TIME VARIES <i>Optional</i>	<b>Bicycle investigation</b>	<b>34</b>

### EQUIPMENT

- Hazards sheets
- Videos: A. *Bicycle Zone*; B. *Pedal Smarts Flat Tire Repair*
- Tire patch kits (items per every two students: 4 patches, 1 tube of glue, 1 piece of sand paper)
- Tubes (15)
- Pumps (6)
- One basic repair kit (page 90)

### OVERVIEW

#### Purpose:

This lesson reviews traffic laws, addresses riding hazards and repairing flat tires.

#### Topics covered:

- Bicycle laws
- Hazards, reasons for collisions
- Repairing flat tires

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies
- Predict consequences of behaviors

##### Healthy relationships

#### Physical education

##### Expressive and efficient movement

- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Laws, hazards and repair

BACKGROUND

LESSON

**WHAT:** Re-discuss the rules of the road (see *Lesson 1*).

**PURPOSE:** It is essential that students have a long-term, basic understanding of the rules of the road.



## RULES OF THE ROAD REVISITED

Review the discussion about laws in *Lesson 1*.

Topics include:

- riding on the right,
- identifying and abiding by all traffic signs,
- signaling before turning,
- riding single file,
- helmet law,
- right-of-way rules through intersections,
- predictable riding.

Move on once students have a basic understanding of riding like a vehicle.



## COMMON REASONS FOR COLLISIONS

Interestingly enough, about 85% of all bicycle crashes do not involve a motor vehicle. Is this what our bicycle crash journal stories told us?

(TEACHERS, you may want to re-discuss the crash stories here).

But, the worst bicycle accidents occur when crashing with a car. Youths are at fault almost all of the time when they do crash with cars. Therefore, most really bad accidents can be avoided by smart cycling.

What are the frequent causes of major bicycle crashes for youths?

THE two top reasons are:

- cyclists come out of a driveway, don't stop and crash with a car
- cyclists fails to comply with the right-of-way rules at intersections, such as running stop sign

Brainstorm other ideas about why bikes crash, why bikes crash into cars:

- failure to yield when changing lanes, or swerving into traffic.
- bicyclists ride the wrong way on a street and crash with a car
- when a motorist turns left
- sidewalk cycling
- when motorists turn right
- when motorists restart from stop sign.

Generally, riding like a car (i.e. following the laws and driving rules) will prevent crashes with cars. Other crashes can only be prevented with increased cycling skills (example: avoiding glass and hazards). We will teach some of those things next in the lesson and later during this curriculum.

**WHAT:** A discussion about the common reasons for collisions

**PURPOSE:** Because the majority of youth bicyclists who crash with cars are at fault, the information in this lesson will work to decrease these crashes.

For more detailed crash data, see *Handouts*, page 99.

# Laws, hazards and repair

## BACKGROUND

**WHAT:** A discussion about and activity identifying riding hazards. Avoidance techniques are taught during *Lesson 8*.

**PURPOSE:** To increase knowledge of hazards so they can be identified and avoided while riding the bicycle. This exercise will increase safety while cycling.

There are three main types of hazards: surface, collision and visual. The Hazards Handout depicts many of these.

**Surface hazards:** include glass, storm grates, potholes, railroad tracks, rain, ice, or leaves.

**Collision hazards:** include turning cars, other bikers, pedestrians, dogs, and trains. Also included are parked cars with opening doors.

**Visual hazards:** block a bicyclist's view. They include bushes, fences, other cars, buildings, and too little light at night.

## LESSON



## HAZARDS IDENTIFICATION

.....  
**MATERIALS:**

- "Find 10 Hazards" worksheet, p. 99
- .....

- 1 Discuss the types of hazards with the class. Explain the problems and threat that these hazards pose.
- 2 Distribute the hazards handout sheet, have each student circle the hazards and list them on side of the sheet.
- 3 Review the sheet. Discusses avoidance of the hazards with the class. We will practice avoidance on the bicycle at a later time.



## FIXING A FLAT TIRE

### MATERIALS

#### REPAIR TOOLS:

- 3 tubes of glue/  
10 students
- 1 patch per 2 students
- 2 tire irons per/rim with tire
- 1 pump/5 students
- Sandpaper
- Innertubes (at least 1 per 2 students)
- Rims/tires (optional)
- Chalk or light colored marker
- Pump (normally on bike)

#### SMALL TOOL BAG:

- Patch kit  
(patches, glue and sandpaper)
- Y-wrench
- Rag
- Tire irons
- Small flat-head screwdriver
- Band-Aids
- Water resistant electrical tape
- Important hex keys

*Note: The inner tubes and rims used for this lesson should not be the ones used on the fleet of bicycles but instead old, used equipment.*

**WHAT:** An activity where students patch a flat tire

**PURPOSE:** Flat tires occur relatively frequently when bicycle riding. Cyclists need to be able to fix flat tires in order to continue their ride when they get flats, otherwise have a good walk!

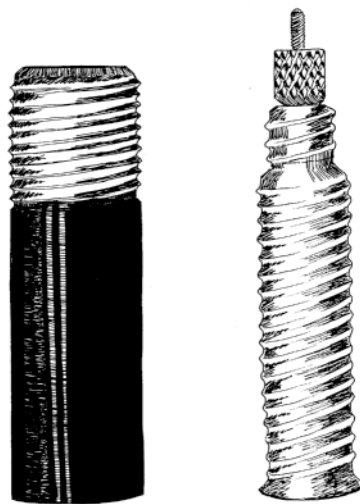
- 1 Introduce the lesson: this lesson teaches how to fix a flat. Of course, you can't fix the flat if you don't carry the tools with you, so I always carry some basic tools in case of emergency (show them small tool bag).
- 2 Discuss potential road hazards that cause flats. Glass and nails are very common.
- 3 Demonstrate or have student demonstrate repairing a flat. (If a student demonstrates, stress that they talk loudly).
- 4 How to: Assuming we have rims, tires and tubes, the tube must be taken out from between the tire and rim, patched or replaced and put it back in.

### *How to fix a flat:*

- Take one side of the tire off of the rim with the tire irons (not the whole tire off),
- Take the tube from between the tire and rim and pull the tube out starting with the side opposite the air valve.
- Pull tube out.
- Check the tube to find the hole. Usually this is easily done by pumping up the tire and feeling for the air coming out. Mark the hole with a marker or chalk.

# Laws, hazards and repair

- Sand hole, apply enough glue over the hole to touch entire surface of the patch but don't glob it on. Wait till dry, they say 5 minutes (but you can blow on it and it dries fast). Either way, be sensitive to the amount of time required to wait for glue to dry.
- Apply patch over entire hole and press it firmly.
- Check the patch by pumping up the tire and listening for sounds. If it holds, release the air (not all of the way) and replace tube on rim.
- To replace the tube on the rim, first put the valve stem into the valve hole. Work from the side where the tire is off the rim. Push the tube in between the rim and tire, making sure it is not twisted.
- Put the tire back on the rim (over the tube) and pump up the tube. Normally, a cyclist would have to put the wheel back onto the bike.



Schrader valve

Presta valve

*Two types of valves*





## BICYCLE VIDEO

*Optional*

---

### MATERIALS

- *First Gear* (21 minutes)
  - *The Bicycle Zone* (12 minutes)
  - *Pedal Smarts* (18 minutes)
- 

Show a video to reinforce skills, concepts and rules before the students ride their bicycles. Discuss main elements of the video.



## JOURNAL ASSIGNMENT

What have you learned about bike safety? Describe how you are supposed to ride your bike around the community. On what side of the street? How do you interact with traffic signs and signals. What types of things have you or do you normally see people doing wrong when cycling?

### *Read Journals*

As a wrap-up, find out what students learned during this week. You can ask some of the original survey questions again to see if you get a change in response. How did students like these lessons. If time permits, allow students to read their journal essays.

# Laws, hazards and repair

BACKGROUND

LESSON



## BICYCLE INVESTIGATION

*Optional*

Continue the work plan as set out in *Lesson 2*. Count the bicycles parked at the bicycle racks.

Consider having a speaker come in and discuss bicycle ridership, the bicycle facilities that are in place, and the City's support for education of cyclists. Ask what they are doing to make the city safer for kids to cycle. See *Resources* for potential speakers including City planner, police officer, bicycle club member, bicycle shop employee.

*Other Optional Activities*

### *Route Selection*

Factors in considering route selection: Where are you? Where do you want to go? What is a safe route?

*Traffic:* Lower traffic streets may be better to bike on. We should all be concerned with crossing major streets.

*Stop signs and stop lights:* It is better to have these controls at intersections with high traffic roads.

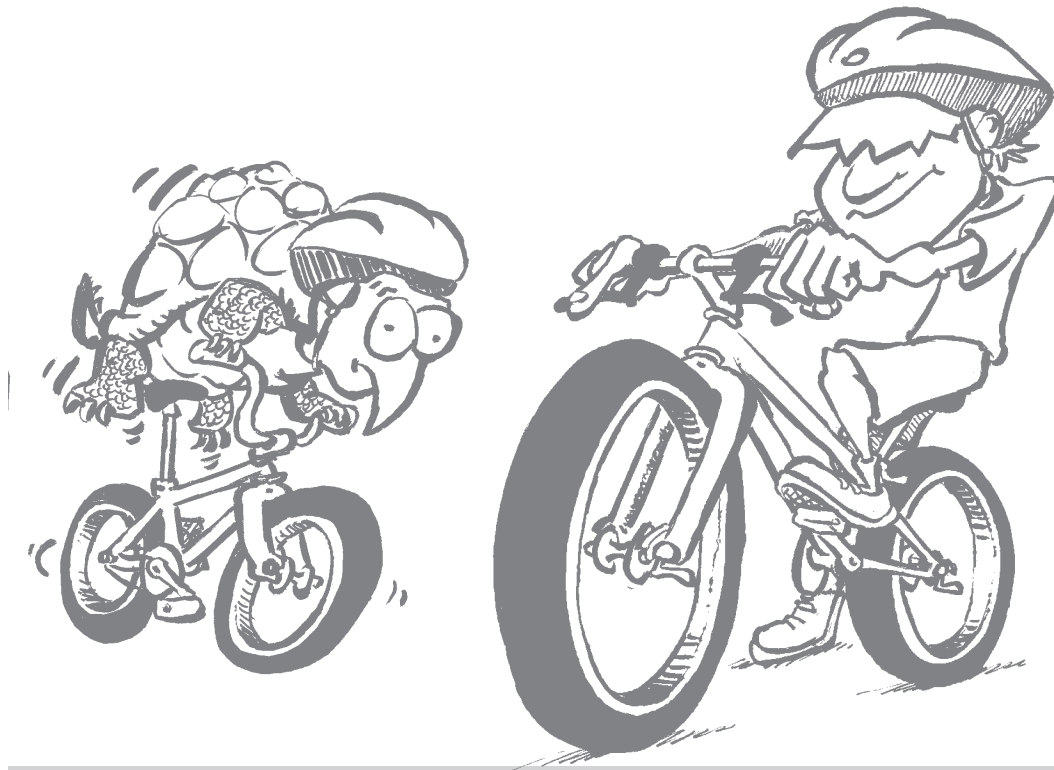
*Others:* Street conditions (especially avoid train tracks); the scenery; time.

Consider discussing this topic before and after riding around in traffic. In addition, consider the mapping activity in the BTA's *Safe Routes for Kids – Transportation Alternatives and Solutions* curriculum.

### *Community Service Project: Posters*

Make bicycle safety posters that can be hung around the school and around the community. Bring large pieces of paper and get proper art supplies. Give the students the laws and information to give them ideas for the poster. Bring pictures of bikes so they can draw them. (The BTA also has promotional posters available.)

# Traffic simulation; fitting bikes



## LESSON 4

!	10 MINUTES	
	<b>Right of way</b>	<b>36</b>
!	20 MINUTES	
	<i>Optional</i>	
	<b>How to drive a car / bike</b>	<b>38</b>
!	10-15 MINUTES	
	<b>Proper fit of bicycles</b>	<b>40</b>
!	20 MINUTES	
	<b>Basic bicycle maintenance check</b>	<b>41</b>
!	5 MINUTES	
	<i>Optional</i>	
	<b>Secure bicycle locking</b>	<b>43</b>
	HOMEWORK	
	<b>Journal</b>	<b>43</b>
!	TIME VARIES	
	<i>Optional</i>	
	<b>Bicycle investigation</b>	<b>44</b>

### EQUIPMENT

- Fleet of bikes (15 or more)
- Bicycle maintenance check worksheet
- Parent letter (staple to bicycle maintenance check worksheet)
- Chairs or cones (12)
- Stop signs (2)
- Citations (2)
- "Who has right-of-way I" sheet
- "Who has right-of-way II" sheet
- Right-of-way worksheets
- Bicycle locking*
- Bicycle locks (2 of each: U-lock, tire wires, chains, combination/key pad lock)
- Area to demonstrate locking procedure

### OVERVIEW

#### Purpose:

This lesson demonstrates proper intersection behavior, seat placement, bicycle maintenance, and sizing of bicycles.

#### Topics covered:

- Riding through intersections
- Bicycle fit
- Bicycle maintenance

#### Preparation notes:

Teachers should allow students a few minutes to retrieve their bicycles from the bike racks. Physical education teachers may consider offering a locker room, or other secure area, for storage of cycles. Students can put their bicycles in the storage area in the morning. During the previous day teachers must remind students to bring their bikes.

Teachers may try to acquire a volunteer bicycle mechanic or other knowledgeable person (see page 92 for volunteer resources).

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies
- Predict consequences of behaviors

##### Safe and healthy environment

- Apply injury prevention

##### Healthy relationships

- Understand and apply concepts of effective communication with peers and adults

#### Physical education

##### Expressive and effective movement

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement
- Demonstrate basic strategies specific to one team activity and one dual or individual activity
- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Traffic simulation; fitting bikes

BACKGROUND

LESSON

**WHAT:** A discussion and worksheet activity to teach right-of-way.

**PURPOSE:** Understanding right-of-way rules will improve the student's ability to safely navigate and proceed through intersections



## RIGHT-OF-WAY

### MATERIALS

Worksheet: Who has the right-of-way?

Overhead: Right-of-way rules (p. 99)

Overhead: Intersection (p. 99)

Overhead: Intersection vehicles (cut-out individual bicycles, cars, pick-up truck for activity) (p. 99)

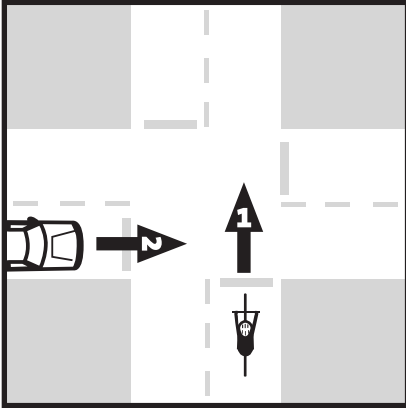
Overhead projector

- 1** Introduce the concept of right-of-way. Ask, “Who can tell me what they know about right-of-way?” Tell them that right-of-way is a set of traffic laws that vehicles must follow and that helps us know who’s turn it is to go at an intersection. Ask students if they have heard the expression, “The pedestrian has the right-of-way”. Ask them if they know what this means. You may also want to mention that in skiing and boating similar right-of-way rules exist to keep people safe.
- 2** Demonstrate the three right-of-way rules using the intersection overhead and intersection (bicycle, car and pick-up truck) pieces. Show different scenarios and have the students identify who has the right-of-way. Show how right-of-way works at a 4-way and 2-way intersection. Briefly mention what would happen at an uncontrolled intersection. Optional: Elementary aged students may benefit from using a paper copy of the intersection and paper cut-outs of the vehicles to simulate what you are demonstrating on the overhead.

The three right-of-way rules are:

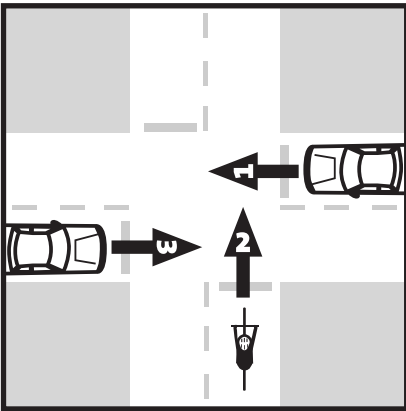
- The first person at the intersection goes through the intersection first
- When two cars get to the intersection at the same time, the person on the right side goes first
- When two people are directly across from each other, and one is going straight and the other is turning left, the one that is going straight goes first.

Distribute the Right-of-way worksheet for the students to complete. Place the Overhead: Right-of-way rules on the projector so students can have clear examples of the three rules while they work. Give the students 5-7 minutes to finish and turn in the worksheets.



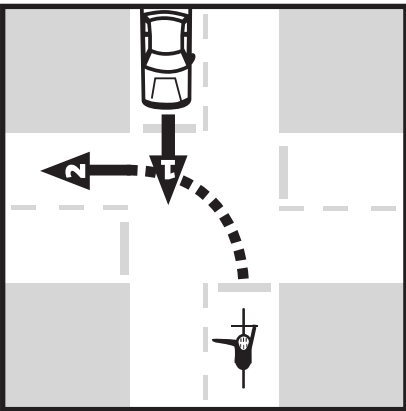
*First to stop.*

The first person at the intersection goes through the intersection first.



*Right goes first.*

When two cars get to the intersection at the same time, the person on the right goes first, they have the RIGHT OF WAY.



*Straight goes first.*

When two people are directly across from each other, and one is going straight and the other is turning left, the one that is going straight goes first.

*Optional*

Additional discussion questions are found on the answer key in the Handouts and Worksheet section of the curriculum.

# Traffic simulation; fitting bikes

BACKGROUND

LESSON

**WHAT:** Students navigate through a simulated intersection. The activity is conducted inside a classroom and students walk, or done outside on foot or bike, through the intersection. Have fun!!

**PURPOSE:** The point of this exercise is to familiarize students with the rules of the road and intersections. Students will learn the basics of right-of-way, turning position and hand-signaling. Moving correctly through intersections is essential to avoid bicycle or car crashes.

This lesson can be run in a classroom, gymnasium, outside on a blacktop, field, or in a low-traffic intersection. Teachers should configure an intersection using cones, chairs or chalked lines prior to the class. If on blacktop or pavement, teachers should use chalk and write the lane position numbers on the ground so students can recognize where they should be in different traffic situations.

Most instructors prefer to use a low-traffic intersection in order to get students riding on bikes as soon as possible. If this is what you plan to do, it is recommended that you first run Lesson V, Controlling, stopping and signaling. Regardless which lesson you run first, teachers must conduct proper bicycle fit and bike safety check (see pages 40-42, later in this lesson) before allowing students to ride bikes.



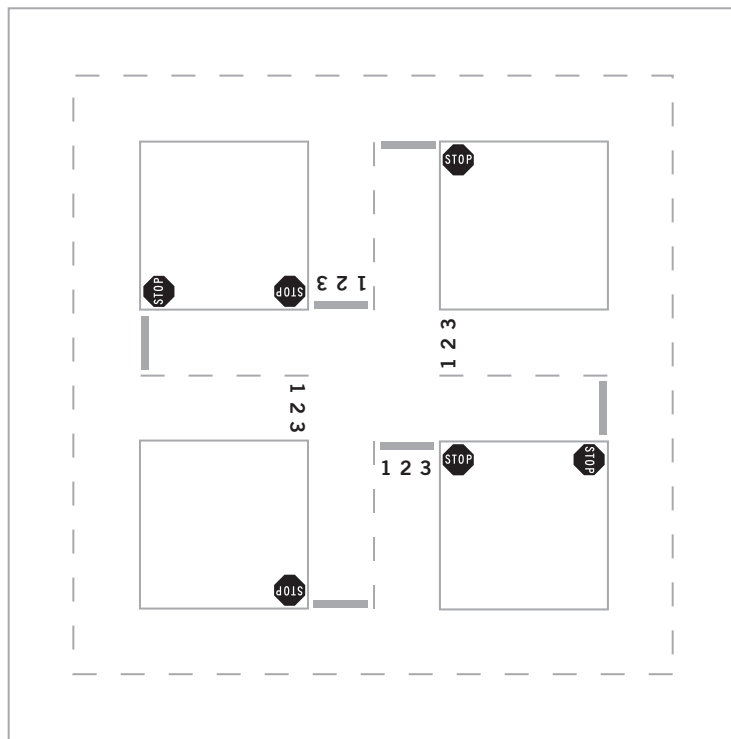
## HOW TO DRIVE A CAR / BIKE

*Optional*

### MATERIALS

- Chairs or cones (16)
  - Gym, large classroom or auditorium
  - Sidewalk chalk
  - Yield signs (2)
  - Stop signs (4)
- (See Handouts, p.99, for traffic signs)

### 1 Set up a simulated intersection beforehand.



### *Sample course of simulated intersection*

Use sidewalk chalk and traffic signs to set up a simulated intersection on the playground. Masking tape can be used in place of the chalk for a classroom course. Change signs to challenge students with other intersection configurations. Have students who are not participating carefully watch those who are and hand out citations to students who break rules.

**2** Use the intersection to present the intersection maneuvers. Talk about the concept of ‘right-of-way’ and practice hand signals. The rules of a 4-way intersection with stop signs are:

- The right of way is given to the first person to stop.
- All drivers must then yield to the driver on the right.
- The driver going straight goes first.

Of course this varies when only one car has a stop sign. This also varies when one car has a yield sign. (Introduce the yield sign and talk about this).

- 3 Demonstrate the proper lane positioning for each type of turn.
- 4 Have a couple of adults demonstrate maneuvering through the intersection. Teachers should show the right-of-way concepts by yielding to right or when taking a left turn.
- 5 Start with a small group of students going only two at a time. They will enter the intersection, read the traffic signs, look for other traffic, obey the rules, use turn signals, and make their turn. The teachers should take liberty to introduce signs at will. A good progression is to begin with four stop signs, decrease it to two signs opposite each and finally no signs. Add Yield signs after stop signs are mastered.
- 6 To allow students to run or ride fast, spread the course out and let students run or ride through the course but require that students go around an end cone that is far away from the intersection.
- 7 Introduce the yield sign to the exercise.
- 8 Begin to enforce traffic laws and hand out citations if the traffic is too fast or if people violate laws. Some instructors eliminate students who break traffic laws until one student is remaining. Briefly discuss traffic court.
- 9 Discuss this exercise. Finally, convey the concept of congestion. Have just a few students go through the intersection. Add more and more and watch the system get too crowded and break down. This is why people should ride their bikes — because with a lot of cars on the road we get congestion. Congestion applies to many other things when too many people use them at once (like the internet and classrooms). When we overuse things such as gasoline for automobiles we also tend to deplete our resources (this is discussed in *Safe Routes for Kids Transportation Alternatives and Solutions*).

# Traffic simulation; fitting bikes

BACKGROUND

LESSON

**WHAT:** Students analyze and adjust bikes to ensure that they properly fit.

**PURPOSE:** Proper fit is essential for safety and efficient riding.



## PROPER FIT OF BICYCLES

### MATERIALS:

- Fleet of bikes
- Children's own bikes
- Wrench, for seat adjustments (crescent and allen wrenches)
- Bicycle maintenance checklist to record whether bikes properly fit students (*optional*)

**1** If teachers have encouraged students to bring bikes to school, they should allow their students to quickly retrieve their bikes. For students without bikes, match them with a bike from the fleet.

*Note: The fleet of bikes may be numbered or labeled with names. Once fitted, encourage or assign students to the same bike for each future lesson.*

**2** Explain that the class will check to see if bikes fit properly. Proper fit is very important for safe handling, ease in pedaling and especially to prevent hitting the top tube when dismounting quickly. Bicycles that are too big should not be ridden, even if the student might eventually “grow into it.” Riders should also avoid using bikes that are too small.

There are a couple of basic checks to demonstrate proper fit:

**3** Stand over the bike: the top tube of the bicycle should not touch the student yet it should only be about two inches away. (This can depend on the type of bicycle.) For bikes with downward slanting top tubes, measure tube height as if it were straight.

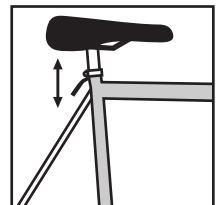
**4** Sit on the bike: Students should place the ball of their foot on the pedal when the pedal is closest to the ground. The student's leg should be almost totally extended; it is good to have a slight bend at the knee. If the bike frame fits but the pedals are too close, raise the seat post. If the pedals are too far, lower the seat post. A safety precaution would be to make sure that students can put their toes on the ground.



**5** Adjust the seat height:

**A.** Quick release seats: pull the quick release up, loosen it by turning counterclockwise (lefty loosey, righty tighty), and slide the seat up or down, make sure it is straight to the frame. Retighten the quick release by turning it clockwise and pushing it down.

**B.** Nut and bolt seats: loosen the nut with a wrench (counter-clockwise) and adjust the seat. Retighten the nut.







## BASIC BICYCLE MAINTENANCE CHECK

### MATERIALS:

- Bicycle maintenance check sheets
- Bicycles
- Tool kit

### *Discussion topic: What and why of a bicycle check*

**WHAT:** A basic bicycle check is a quick procedure that we can do to see if the bicycle is in good operating condition. As part of the bicycle check, we will look over all basic parts of the bike. A regular tune-up, a bigger job, will keep a bike in good condition. A tune-up includes cleaning the bike, readjusting (fixing) the brakes, tightening the pedals, “truing” the wheels (making them round), readjusting the derailleurs, and sometimes taking apart and cleaning the hubs and headset. Tune-ups usually mean taking the bike to a shop and having them work on it. Bicyclists who ride a lot will do a big tune-up about twice a year. We might need it less often, probably once a year.

**Why:** Keeping your bike in good working condition is really important. If your bike is unsafe to ride you could get into a bad crash (like if your wheel falls off). If your bike is safe but is not working well, it will be difficult to ride and you won’t be able to go as fast or pedal as easily, and it may lead to more serious damage that costs a lot to fix.

**How:** For our bicycle check, we will determine if our bikes are in good operating condition, or if they need to be taken to the shop for fixing or to be cleaned and have minor repairs. We will go through a standard bicycle maintenance check list to see if the bike is safe to ride.

**WHAT:** Students conduct a basic bicycle maintenance check, an inspection of their bicycles to ensure they are safe for riding.

**PURPOSE:** Checking bicycles ensures that they are safe to ride. This lesson teaches students to check their bikes to ensure safety.

# Traffic simulation; fitting bikes

BACKGROUND

LESSON

## About bicycle maintenance

There is potential to conduct some minor repair of students' bikes.

Teachers should get a volunteer bicycle shop mechanic to help out the class and either arrive with tools and a bike stand (or the teacher may have previously purchased tools. This can also be done after school with a volunteer.

Bicycles with problems such as a rusty chain or wobbly rims are not very dangerous and can be ridden, but should eventually be fixed by a bike mechanic. Things that teachers should not let their students ride with include:

**bulgy tires** (*need new tire*)

**loose pedals** (*tighten or take to bike shop*)

**flat tires** (*patch hole, reinflate*)

**loose handle bars** (*tighten bolt at top of handle bars*)

**wheels that are not tight on the bicycle dropouts** (*tighten quick release or nut*)

**poor brakes** (*take to bike shop*)

**wheels that are placed improperly on the bicycle dropouts** (*reset wheel in dropouts*)

**loose seat** (*tighten quick release/nut*)

## Coaster brakes

Stand alongside the left side of the bike. Position the left pedal so that it is towards the rear of the bike, about 45 degrees below the horizontal position. With the left foot step hard on the left pedal and push the bike forward. If the wheel skids the brake is okay; if the wheel turns the brake is no good. Next, check that the brake arm is firmly bolted to the left chainstay.

## Conducting the maintenance check

- 1 Teachers should have students get into a straight line standing next to their bikes. If there are not enough bikes pair students together. There are five major steps to the bicycle safety check that can be run in any order. We will check the chain, tires, seat, handlebars, and brakes. It is also a good idea to check the quick releases and pedals. Below is a suggested order.
- 2 Have students stand to the left of their bicycle. Pick up the rear wheel and spin the pedals. Students should look at the chain to make sure it is moving smoothly and is not too rusty. While doing this, students should pull on the pedals and make sure they are not loose.
- 3 Students should then check the air pressure of their front and rear tires. Squeeze the sides to get a more accurate measure of air pressure. Students should not be able to squeeze tire in much, if at all. Students should look at the quick releases of the wheels to make sure they are locked down tight.
- 4 After setting the seat height, students should check the tightness of their seat by trying to move the seat from side to side and by tapping on the nose of the saddle. If the seat wiggles, tighten the seat bolts and/or quick release lever.
- 5 Check handlebar tightness by having students stand in front of the bike and squeeze the front tire with their knees. Try to turn the handlebars while holding the tire still. If the handle bars are tight, students will feel the pressure of the tire on their legs and the handlebars will not turn. If handlebars turn and the wheel stays straight, tighten the stem-bolt.
- 6 Students should now stand over their bikes and squeeze the brakes with two fingers and leave the other two fingers on the handle bars. When squeezing brakes, the brake levers should not touch students' fingers that are on the handlebars. Next, sit on the bike seat. Push the bike forward and apply both brakes. Make sure that the brakes stop the wheels from turning. Finally, get off the bike and look closely at the brake pads. While braking the brake pads should be aligned with the rim and only be in contact with the rim. Also check the pad for wear. Most brake pads have a wear line. Make sure the pads have not worn below this limit.

- 7 If students have any problems — poor chain, loose seat, tires or pedals, flat tire, or poor brakes — these problems must be solved before using the bike. If there are problems, students should go to repair stations that teachers have set up. E.g., pumping station in the corner, brake adjustment in another corner.

*Note: If the mechanical problems are too severe to correct in school the bicycle should not be used until repaired. Encourage the student to take the bike in for repairs or arrange for a volunteer to help you.*



## SECURE BICYCLE LOCKING

*Optional*

### MATERIALS

- U-lock
- Padlock
- Wire lock
- Bicycle

*Conduct this section if time permits. It is often easily done at the end of the class when students are putting their bikes back on the bike racks.*

- 1 Discuss activity: bikes must be parked and locked properly to minimize theft and vandalism. Locks can vary in type but should be sturdy. U-locks are one of the most secure. Chain or reinforced cable, combination locks and key locks are also usable.
- 2 Take bicycle to a locking facility (this can be done at the end of class when other students are planning to lock their bicycles at the racks) and demonstrate.



## JOURNAL ASSIGNMENT

Describe your furthest bike ride or your most fun riding experience. If you don't ride, talk about your furthest or most adventurous walk. Where did you go? How long did it take you and was it really hard? Was it dangerous? Were you scared? Did you crash? Did you get lost? Tell about it!

**WHAT:** Learning to properly lock bicycles

**PURPOSE:** To ensure that bicycles do not get stolen.

### How to “U Lock” your bike

Lock your frame and front or back tire to a regulation rack or sign, pole, etc. Do not simply lock the front tire or seat because the rest of the bicycle can easily be stolen. As for deciding which wheel to lock, front wheels are usually easier to steal but rear wheels are more expensive.

#### Front tire

- Place the U-lock through the spokes of the front tire (with the ends of the U facing the rear);
- Place the U-lock so the ends are past the down tube and straddle the pole;
- Lock the U-lock.

#### Back tire

- Place the U-lock around the seat tube and inner rim of the wheel or seat-stay and wheel;
- Place the U-lock so the ends are through the bike and past the pole or rack;
- Lock the U-lock.

*\*U-lock manufacturers say that minimizing excess room in the lock and facing the keyhole downward are ways to decrease breakability of a U-lock.*

# Traffic simulation; fitting bikes

BACKGROUND

LESSON



## BICYCLE INVESTIGATION

*Optional*

Continue the work plan as set out in *Lesson 2*. Count the bicycles parked at the bicycle racks.

Consider having a speaker come in and discuss bicycle ridership, the bicycle facilities that are in place, the City's support for education of cyclists, and ask what they are doing to make the city safer for kids to cycle. See *Resources*, page 92, for potential speakers including City planner, police officer, bicycle club member, bicycle shop employee.

*Other Optional Activities*

### *Route Selection*

Factors in considering route selection: Where are you? Where do you want to go? What is a safe route?

Consider discussing this topic before and after riding around in traffic. In addition, consider the mapping activity in the *Safe Routes For Kids – Transportation Alternatives and Solutions* curriculum.

### *Community Service Project: Posters*

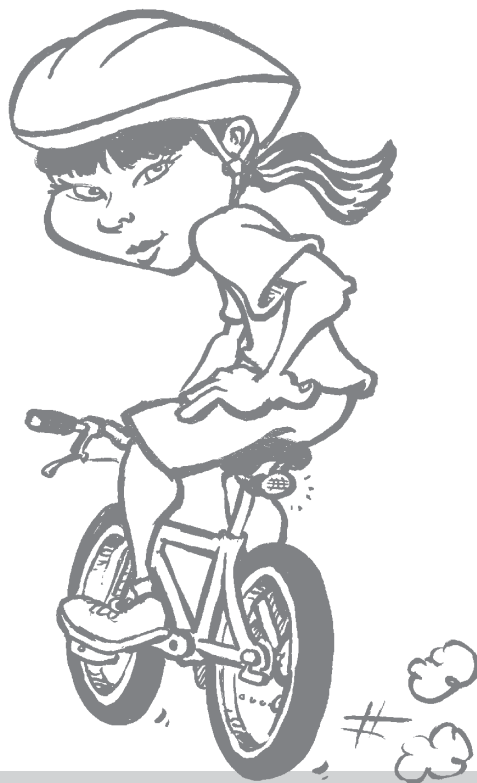
Make bicycle safety posters that can be hung around the school and around the community. Bring large pieces of paper and get proper art supplies. Give the students the laws and information to give them ideas for the poster. Bring pictures of bikes so they can draw them.

**Traffic:** lower traffic streets can be better to bike on. We should all be concerned with crossing major streets.

**Stop signs and stop lights:** It is better to have these controls at intersections with high traffic roads.

**Others:** Street conditions (especially avoid train tracks); the scenery; time.

# Controlling, stopping and signalling



## LESSON 5

?	10 MINUTES	<b>Bike / helmet check</b>	46
!	10 MINUTES	<b>Stopping and slalom</b>	47
!	5 MINUTES	<b>Learning to look back; riding with one hand</b>	48
!	10-15 MINUTES	<b>Looking back and signaling</b>	49
!	10-15 MINUTES <i>Optional</i>	<b>Snail race</b>	50
?	5 MINUTES <i>Optional</i>	<b>Gearing</b>	51
!	10 MINUTES <i>Optional</i>	<b>Follow the leader</b>	52
!	TIME VARIES <i>Optional</i>	<b>Bicycle investigation</b>	53

### EQUIPMENT

- Fleet of children's bikes (15)
- Adult bike (1 or more)
- Bicycle helmets (30-40, various sizes)
- Lane striper / chalk
- Cones (12)
- Stop signs (4)
- Repair kit, tools, pump (see page 90)

### OVERVIEW

#### Purpose:

To provide hands-on experience making the connection between classroom activities and actual bicycle riding.

#### Topics:

Lessons 5 through 10 are the on-the-bicycle riding element to this safety program. Many concepts that were introduced in the classroom will be discussed again in these lessons.

- Recheck bikes / refit helmets
- Stopping
- Signaling in traffic
- Basic bicycle control skills
- One-handed riding
- Scanning

*Note: This would be a good lesson to recruit a person who knows some bicycle maintenance, fitting helmets and has riding skills.*

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies

##### Safe and healthy environment

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

##### Healthy relationships

- Communication to enhance safety

#### Physical education

##### Expressive and efficient movement

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

**Bicycling, and other exercise, is an essential component of leading an active and healthy lifestyle. In order to stay physically limber and safe, it is suggested that riders stretch before and after exercising.**

# Controlling, stopping and signalling

BACKGROUND

LESSON

**WHAT:** A quick bike check and helmet check.

**PURPOSE:** To review and make sure that bikes are in good maintenance and that helmets fit the students properly.

Students must have a well-maintained bike to ride (see *Lesson 4*, page 41, for maintenance check). With the fleet of bikes and children's own bikes, most of the class will have a bike to use for the entire session. Sharing bicycles should not be problematic because most of the activities are efficiently performed with only a portion of the students riding at once. Today is a good day to get a volunteer bike mechanic to assist the students with problems with their bikes.



## BIKE / HELMET CHECK

### MATERIALS:

- Fleet of bicycles
- Helmets for each student
- Wrench for adjusting seat
- Maintenance checksheets
- Students' own bicycles if they passed the maintenance check

### *Fitting bikes*

- 1 Teachers should have helmets and the fleet of bicycles. Each helmet should be labeled with a student's name.
- 2 Distribute helmets that are marked with student's names and match students with the bikes they were using.
- 3 Briefly review the elements of properly fitting helmets. Have students help each other to ensure they have properly fitting helmets. Do this prior to each on-bike lesson.
- 4 Students with problems should raise their hands for assistance.
- 5 Teachers should also discuss shoelaces and pant legs with students before riding. All shoe laces must be tied and long ones tucked into the side of shoes so they don't get caught in the chain. Pant legs should be rolled up, tucked into socks or restrained with a rubber band. This will prevent the pant legs from touching the chain, which will make it dirty, or getting caught in the chain. If laces or pants get caught in the chain, stop pedaling, brake and stop. Untangle the problem.
- 6 Teachers should line students up and have them stand next to the person they were working with during the bike-fitting exercise (see *Lesson 4*).
- 7 Have students make sure that the bike is properly sized. Remember, two inches above the top tube and when seated, leg should be almost totally extended when foot is on pedal. If there is a problem, they should raise their hand and you will come around to help them find a new bike or adjust the seat.
- 8 Once properly fitted, students should be encouraged to use the same bike for the rest of the program.

### *Bike maintenance check*

- 9 Students should do a quick maintenance check on the bike. For more information see page 41 and *Handouts*, page 99. The basic activities are:
  1. chain check
  2. pedal check
  3. tire check
  4. seat height and tightness
  5. handlebar tightness
  6. brake check
- 10 Students with problems should raise their hands for assistance.

*Note: In general, if any students have major problems, a bicycle mechanic or other volunteer should take those students aside and the teacher should continue with the next activity.*



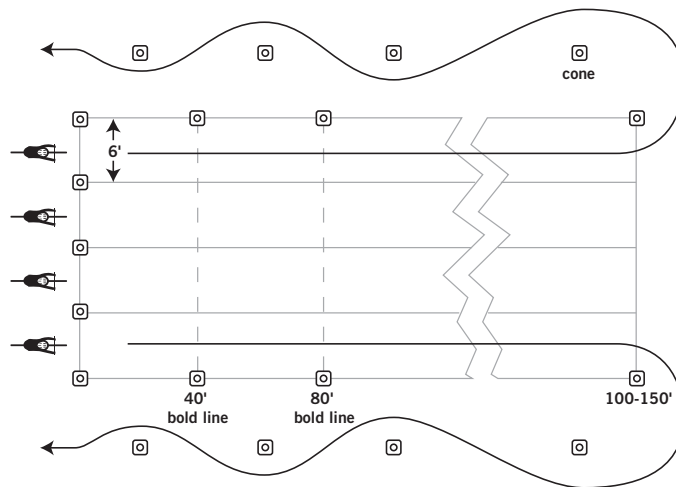
## STOPPING AND SLALOM

### MATERIALS

- Chalk to draw course outlines
- Cones for course
- Stop signs (4) — see *Resources*

### RIDING ACTIVITY LAYOUT

All four bicycling activities in this lesson can be run on the same riding course (see diagram). The optimal riding course will be on pavement. The course should have up to four lanes, each six feet wide and 100-150 feet long. Place a strip across the course or place cones on either side of the 40 and 80 foot mark of the course. These lines will serve as stop signs, places to look back from and the competition area for the Snail Race. On the sides of this course, teachers should put cones for a slalom activity. Students can do slalom on the way back to the line.



- 1 Discuss “stopping technique”, “when to stop” and starting technique.
- 2 Line students up in groups, single file at each lane. Explain activity.
- 3 Review hand signals, including stopping. Remind students to brake with both hands or else they could flip over their handlebars.
- 4 One student from each lane will begin simultaneously and ride to the sign, stop and restart.
- 5 Have each participant give the “stop” signal, brake with both brakes, stop, straddle their bike, then look left, right and left for traffic (students who are not comfortable with using the stop signal are not required to use it here and have the option of saying “stopping” instead. In general bicyclists do not have to use hand signals if they need both hands to safely maneuver the bike. The stopping hand signal is often used in group riding situations so that riders don’t run into each other. For this exercise, students have both options).
- 6 When it is clear, they should proceed. Once done, students should peel off to the sides (left two lanes go left and right two lanes go right) and ride back to their lines. Students should go through slalom course on their way back to the back of the line. Have students go through the course once or twice.

**WHAT:** Students will learn the proper technique of stopping a bike, to identify when to stop a bike and how to proceed after looking both ways. This is a basic skill that should be quickly taught to older students.

**PURPOSE:** My father always said “you need good brakes, this way you always know that you can at least stop.” This activity teaches students to make sure they have good braking technique to avoid crashes.

### Stopping technique

Stopping a bike is obviously not difficult, especially if you crash, but there are certain things to know. When stopping a bike with hand brakes, the cyclists should use both the front (left) and back (right) brakes. It is most efficient to apply 3 times the force in the front brake then in the back, but don’t only apply the front brake because it is easy to flip over your handle bars.

### Starting technique

Once you stopped, plan to start again. To do this efficiently and fast, move your pedal backwards until one is at the two o’clock position. This is your push-off pedal and it will give you good starting acceleration to get across busy intersections.

### When to stop

The single most frequent cause of cyclist / automobile crashes is when the cyclist fails to stop. Bicyclists must stop when leaving a driveway and at intersections with stop signs or red lights. They must stop before moving past the sign or into the road where cross-traffic occurs. After looking both ways, or when the light turns green, they should proceed.



# Controlling, stopping and signalling

BACKGROUND

LESSON

**WHAT:** Students ride a straight line to display skills and gain an understanding for the importance of handling and control.

**PURPOSE:** This exercise will test and improve the student's ability to balance and ride a straight line with one hand. It is practice for looking back while riding.

Looking back technique requires the ability to ride in a straight line, then do it while not looking. While riding, students will have to look back and keep their bicycle going forward. This is difficult to do because when you look back your hands tend to turn. When demonstrating this maneuver, show the difference between:

a) bending your elbows and looking back while keeping both hands on the handlebars, or b) taking one hand off of your bike and placing it on your hip before looking back.



## LEARNING TO LOOK BACK: RIDING WITH ONE HAND

### MATERIALS

- Use above course; remove stop signs

Riding with one hand is an important skill for cyclists. The primary time that one-handed cycling is used is when looking back for traffic behind you. Right now we will do a stationary demonstration.

### *Stationary looking back*

- 1 What is looking back? Well, bicycles ride on the right side of the street. When we need to take a left turn, we must look back over our left shoulder to scan for traffic. When it is clear we then move left.
- 2 Everyone should stand over their top tube. Hold onto your handle bars with both hands.
- 3 Keep your hands on the handle bars and try looking over your left shoulder by just turning your neck. How far can you see?
- 4 Next bend your elbows and pivot to look over your left shoulder. Now how far can you see? Farther but also look at your handlebars and front wheel. Often they will get turned and you will swerve into traffic.
- 5 Lastly, put your left hand on your hip and look over your shoulder, you can still see a lot and your handlebars will usually stay straighter. So first we will practice riding a straight line with one hand.

### *Riding with one hand*

- 1 Students can stay in their lines as in stopping exercise. One student from each even or odd line should go at a time (thus two students simultaneously).
- 2 Students ride a line for 50-60 feet with one hand without stopping or weaving out of their lane. Teachers should stress the need for students to maintain control and not bicycle too fast.
- 3 Once one group of students has completed half of the course, the next group should go.
- 4 Once done, students should signal, peel off and ride back through the slalom course to their lines. They can turn with both hands.
- 5 Repeat a few times.

*Note: If students do not successfully complete the exercise have them do it over or talk with them aside since this is a basic maneuver and may indicate an inability to ride safely.*





## LOOKING BACK & SIGNALING

### MATERIALS

- Use same course as above

**1** Demonstrate looking back on the bicycle. Bike with only the right hand on the handle bars and look back over your left shoulder. Each student will ride past a teacher and look back at them. The teacher will hold up zero to ten fingers and the student will call out the corresponding number.

*Note: Teachers should make it progressively difficult by delaying the display of numbers or by showing complex numbers, ex. two thumbs, two pinkies and another finger.*

- 2** Have students go either two or four at a time.\*
- 3** Cyclists will ride one-handed and in a straight line past instructors.
- 4** Students look back once they pass the instructor.
- 5** The instructor holds up the fingers. The instructor should wait a couple of seconds to make students increase looking back time.
- 6** The student calls back what they see.
- 7** Students should then signal to peel back and return to starting line.
- 8** This activity should be repeated a number of times; for it is one of the most important skills needed for successful cyclists.

*Note: Students ride at different speeds. If you hold up 1 finger for the first riders that pass the ones that haven't passed will see it too. Change the number as the second wave of students pass to make them look back at you longer.*

*\*Note: This exercise is difficult and children may swerve out of their lanes. If the lanes are narrow have 2 students go to allow for more space.*



**WHAT:** Activities where students learn to look back while keeping their bicycle going forward and then apply a turn signal.

**PURPOSE:** Looking back is an essential technique because it is the skill that allows students to look for traffic behind them before changing positions on the roadway in order to turn or avoid hazards. Swerving into other traffic lanes is the second most frequent reason for adolescent cycling fatalities.

# Controlling, stopping and signalling

BACKGROUND

LESSON

**WHAT:** A slow-speed race where the last cyclist to cross the line wins.

**PURPOSE:** This activity improves low-speed balance and control skills.



## SNAIL RACE

*Optional*

---

### MATERIALS (OPTIONAL)

- Stopwatch
- Paper
- Pencil
- Prizes for winners — water bottles, rear blinking lights, stickers

---

### RIDING ACTIVITY LAYOUT

Use above course without stop signs.

---

This is a continuation of *Riding a Straight Line* with an added slow-riding element.

*Note: It is recommended that teachers discuss gearing prior to this exercise. See the optional activity below (add an extra 5 minutes). Introducing gearing now will give students the ability to practice during future lessons.*

- 1 Students should remain in their four lines, one for each lane, and will ride in groups or “heats”.
- 2 The last person to cross the finish line in their heat wins the heat and goes onto the “winner’s bracket” in the next round.
- 3 Students will ride within their lanes. Riders are not allowed to place their feet on the ground or cross over their lanes. If they do so they are eliminated from that round.
- 4 The race begins by having students ride up to the 40 foot line together. They should all cross it together and the race lasts until the 80 foot line.
- 5 Teachers can record the winner of each heat and note the lowest times.
- 6 Have playoffs for the two top winners of each heat to see who is the slowest, the first playoff should be groups 1-4 and second groups 5-8. Record the lowest times.
- 7 The two top winners of each heat go to a final race and the first and second place winners are crowned the slow champions. The overall slowest time (thus the best time) should also be recognized.



## GEARING

### *Optional*

How many people live on a hill, like to go fast, or have to go up hills to get to school or other places? When riding a bike, shifting gears allows you to adjust the difficulty of pedaling so you can climb hills and go fast down them.

Most of our bicycles have more than one gear. Gears affect our ability to turn the pedals.

Low gear (like 1st gear) is the easiest to pedal and is used when going slow or when going up hills. The chain is closer to the bike in lower gears. It is always good to get into lower gears when you are stopping the bike so you can quickly and easily start.

High gear is harder to pedal and gives the ability to go fast, especially when coming down hills. The chain is farther away from the bike in higher gears. (Note that the distance that the chain is from the bike does not determine gearing, it's just coincidence and an easy check.)

You can change gears by using the gear shifters. The right shifter changes the back gears (smaller increments, first to second) and the left shifter changes the front gears (larger increments, e.g. from range of 1-7 to range 8-14). Usually, if you move the right shifter away from you or the left shifter towards you, it becomes easier to ride.

Try shifting the right shifter and look at the rear derailleurs as it moves closer to the bike and it would be easier to pedal. Yet it will not move the chain unless you are pedaling. Have one student lift the back tire and one pedal. In general, only shift while pedaling!

The only way to learn is experiment. Just remember....

#### **Low Gear (1st gear)**

Easy to pedal  
Slow  
Uphill

#### **High Gear (21st Gear)**

Hard to pedal  
Fast  
Downhill

**WHAT:** Discussion about using the gears on a bicycle.

**PURPOSE:** Gearing makes for efficient cycling. Gears are important to understand, especially when climbing or descending hills.

# Controlling, stopping and signalling

BACKGROUND

LESSON

**WHAT:** Students ride in a line behind a leader, using communication to keep together and from crashing into each other.

**PURPOSE:** To improve the students bicycle handling and communication skills.



## FOLLOW THE LEADER

*Optional*

.....  
**MATERIALS**

- None

.....  
**RIDING COURSE LAYOUT**

A relatively large blacktop area.  
.....

- 1** Teachers will explain to students that they will be playing follow the leader. Either a student or adult will be the leader of a group of students (five is a normal size) which ride around a blacktop area.
- 2** The ride leader is to call out and use hand signals to show what the group will do on the bicycle. Each participant must then call out and gesture the signal to person behind them in the group. Maneuvers may include turning, slowing, stopping, doing a loop, etc.
- 3** This activity should be done at a slow to medium speed to prevent injury and allow for more sharp turns around cars, poles and islands of raised pavement.



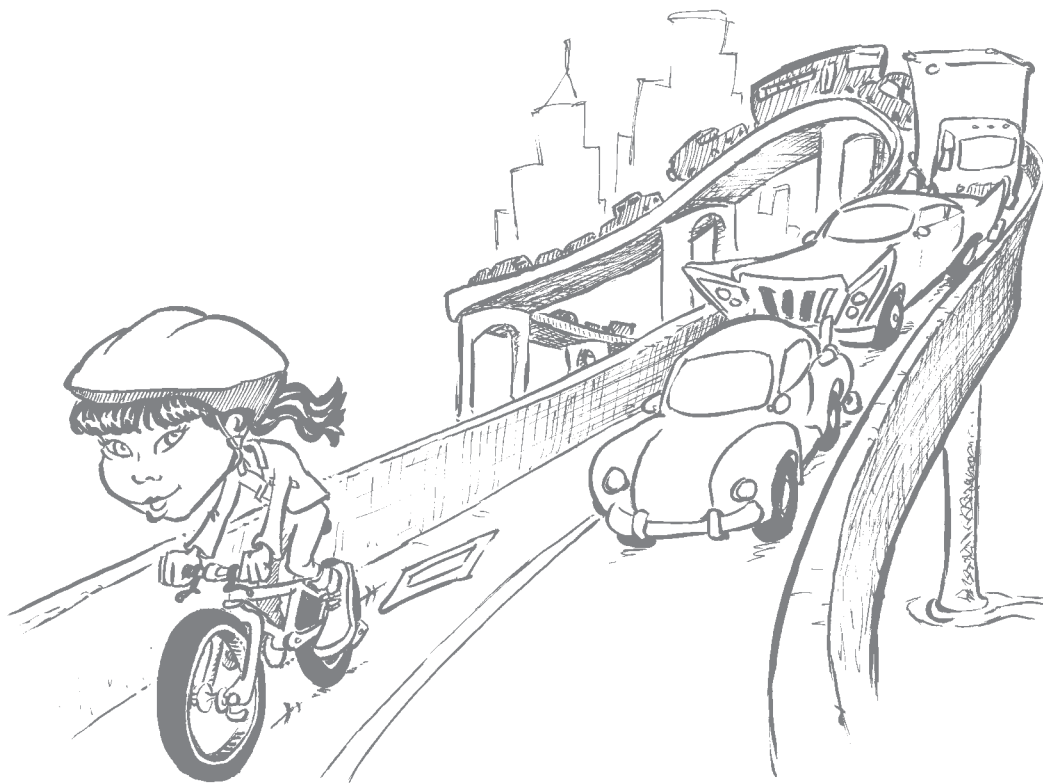
## BICYCLE INVESTIGATION

*Optional*

Continue the work plan as set out in *Lesson 2*. Assess your progress. When will the Bike to School Day be? Count the bicycles parked at the bicycle racks and add to the charting and graphing exercise.

Discuss ridership for the class today. Now that we are doing on-the-bicycle activities, are we riding more or less? Do you think that learning about bikes in school gets more students to ride to school? If we did science or math classes using the bikes, would you ride your bike in for that too?

# Riding with traffic



## LESSON 6

? 5-10 MINUTES	
<b>Warm up / Review</b>	<b>56</b>
! 10 MINUTES	
<b>Predictability: ride on the right</b>	<b>57</b>
! 15 MINUTES	
<b>Exiting driveways</b>	<b>58</b>
? 5-10 MINUTES	
<b>Introduction to intersections</b>	<b>59</b>
! 15 MINUTES	
<b>Moving through intersections</b>	<b>61</b>

### EQUIPMENT

- Car on street or prop to obstruct view
- Cones
- Fleet of bicycles
- Bicycle helmets
- Sidewalk chalk
- Cones
- Pumps, tool, flat tire repair kit

### OVERVIEW

#### Purpose:

This lesson puts students on the road to learn to ride and integrate with traffic. Executing proper vehicle behavior will increase safety of all road users.

#### Topics covered:

- Riding predictably, on the right
- Exiting driveways
- Moving through intersections

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies

##### Safe and healthy environment

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

##### Healthy relationships

- Communication to enhance safety

#### Physical education

##### Expressive and effective movement

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement
- Demonstrate basic strategies specific to one team activity and one dual or individual activity
- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Riding with traffic

BACKGROUND

LESSON

This lesson is best taught on a low-traffic street. The street can be blocked off by police markers or cones can be placed for increased visibility.

The length of roadway should be at least 150 feet and the width should be at least 25 feet. To plan ahead for the following activities in this lesson, use a street that has a four-way intersection that can be used for riding exercises.

The roadway would ideally have two driveways, one on each side of the road. The roadway should be relatively free of parked cars (ensure that at least one side of the street has no parked cars) and traveling automobiles except for two cars that are used for props. These cars should be placed immediately before each driveway as the bicyclist approaches the driveway. This will put the cars in position to act as visual barriers for bicyclists emerging from the driveway. Use cones to represent the cars if cars are not available.

Block off only the street for the first 40 minutes and block off the intersection and road for the last 20 minutes.

Blocking off an intersection can cause trouble for travelling automobiles, so choose a lightly traveled neighborhood street. The intersection should be on at least 25 foot streets and 50 feet on each street leading into the intersection is needed for the intersection activities.

Depending on the street, teachers might have to contact residential homeowners to see if using their driveways is ok. If there is a school driveway, there should be no problem.

*Note: If the driveways are privately owned, contact owners to get permission for use of the driveway. A liability release form to release the landowner from any liability should be signed by the teacher/school.*



## WARM UP / REVIEW

Get warmed up, we will be riding on the road today. Who rode their bikes? Review hand signals. What side of the road are we supposed to ride on?

Have students find their partners, quickly put on helmets and get bikes.

Have students check their helmets for proper fit and their bikes for proper maintenance, shoelaces tucked in and pants rolled up or tucked into socks.

It is also recommended to have students wear bright-colored pinnies or retro-reflective vests when riding on the street.



## PREDICTABILITY: RIDE ON THE RIGHT

MATERIALS

- Volunteers to direct students
- Cones as safety aids or to block off street
- Cars or cone simulation of cars  
*(Optional)*
- Sidewalk chalk to label course

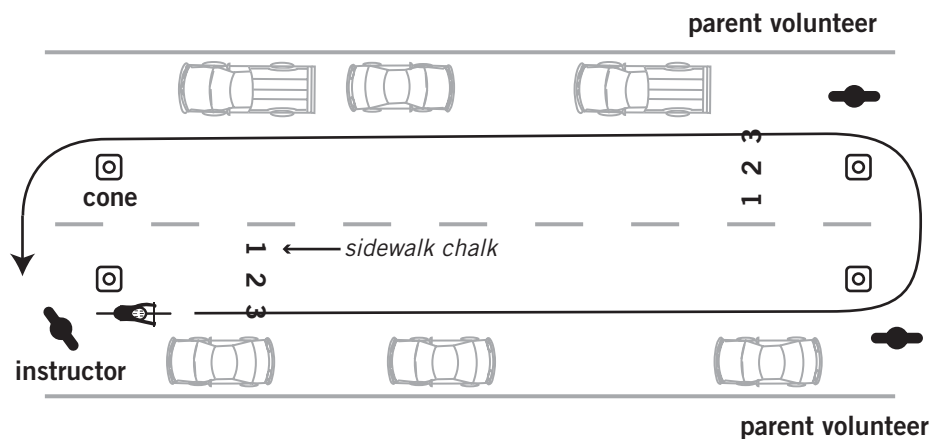
RIDING ACTIVITY LAYOUT

Use the roadway with at least 100 feet of straightaway for this exercise.

**WHAT:** A riding lesson that teaches students to ride on the proper side of the street.

**PURPOSE:** On-the-bike experience of proper road positioning will train youths to ride predictably and safe.

- 1 During the first part of this lesson teachers will explain to students again why they should travel like an automobile. All cars follow the laws and are predictable in their actions. Bicyclists must ride on the right, follow traffic signs and use the same rules as cars so they don't get into crashes with motorists.
- 2 Explain and demonstrate the activity.
- 3 Students will line up at one end of the street and ride in a straight line down the right side of the street (practice in two groups of 15).
- 4 Where there are cars parked on the street, bicyclists should not swerve, rather stay three feet away from the car so you can not be hit by an opening car door. If there are no cars for the rest of the block, students can move closer to the curb.
- 5 Students will pass the car and ride to the end of the street. A volunteer will be at the end and instruct the students to go back down the other side of the street.
- 6 Have the students go around this circle a couple of times to get the students warmed up and used to the movement.
- 7 Switch out students to allow the second 15 to go.
- 8 This same rotation will be used for the next exercises.



*Sample course for riding on the right*



# Riding with traffic

BACKGROUND

LESSON

**WHAT:** Riding activity that demonstrates a right turn out of a driveway.

**PURPOSE:** Using driveways is a good way to introduce intersection maneuvers, i.e. turning and looking for oncoming traffic. Since failing to stop before entering the street at driveways is the number one cause of child fatalities on bicycles, this lesson should be stressed as different than ordinary intersections.

Failure to stop before entering the street is the number one cause of child fatalities on bikes. Often there are obstructions to the view of the bicyclist or motorist, e.g., a parked car, bush or fence. In this exercise, students will learn to stop as they come out of driveways, look left, right, and left again, then merge with traffic. The traffic will be bicyclists riding the street in the same loop they were doing while practicing riding on the right.



## DRIVEWAYS

### MATERIALS

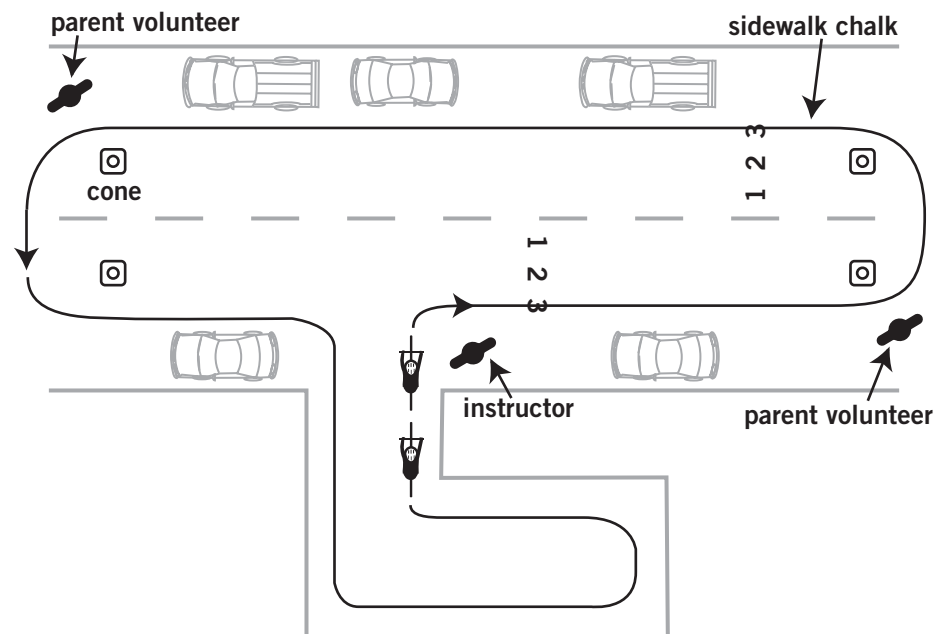
- Volunteers to direct students
- Cones
- Sidewalk chalk to label course

### RIDING ACTIVITY LAYOUT

Same as "Ride on the Right." In this exercise, use available driveways.

### *Right turn:*

- 1 Have ten students ride around the loop.
- 2 One student will emerge from the driveway at each side of the road, stop and signal before entering the roadway. If there are obstructions, tell the students to ride out slowly to see past that obstruction, but don't enter the travel lane.
- 3 The student should make a right turn when it is clear. Instructors must take students out of the loop if it gets too crowded. To expedite the exercise, always have a few students waiting in line to emerge from the driveway.



*Sample course for driveway exiting practice*



## INTRODUCTION TO INTERSECTIONS

### MATERIALS

- Volunteers to direct students
- Cones
- Sidewalk chalk to label course
- Teachers should block off or put out cones at the intersection (Contact a police officer)
- 4 stop sign props

### RIDING ACTIVITY LAYOUT

The same street can be used as in “Ride on the Right”. The intersection must be added to this exercise. Because of adding the intersection, at least 25 feet of the intersecting streets will be used for the activity. Place a stop sign at each street that is coming into the intersection.

**WHAT:** A discussion to introduce intersections.

**PURPOSE:** This introduction to intersections is the first element in a series of discussions and activities to train students the proper method of moving through an intersection. Moving through an intersection is complex and essential for safe riding.

See *Lesson 7* for detailed description of intersection types. These will be covered in *Lesson 7*.

- 1 Introduce students to the intersection and demonstrate turning procedure. There are many types of intersections but the activity is always the same. Riders can go straight, left, or right. It is important for the cyclist to be in the proper position when approaching and maneuvering through intersections. The turning movement is the same as when leaving a driveway.
- 2 To start with, we know the cyclist rides on the right side of the road. Cyclists must vary their positions on the road when they want to make different turns.
 

*Turn right:* cyclist will remain in the same position (on the right side of the road) and signal right. They must watch for pedestrians crossing in front of them and give them the right of way.

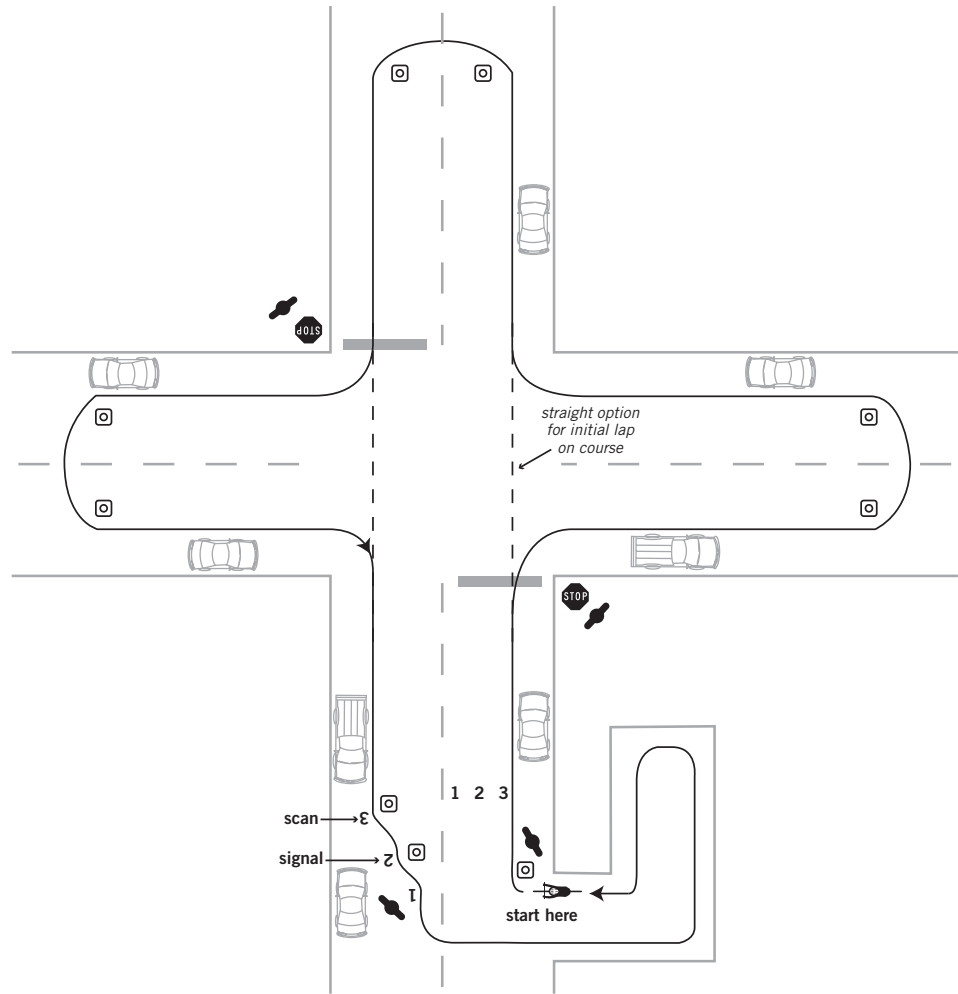
*Go straight:* cyclist will look back and move a little bit more into the automobile travel lane and go straight through the intersection. Once crossed, bicyclist will edge back right.

*Turn left:* cyclist will need to get to the left side of the far left lane. This is done by looking back, signaling, looking back again and moving from Position 3 through Position 2 and into Position 1. Left-turning cyclists must then scan for and yield to oncoming traffic.
- 3 Types of intersections include: uncontrolled, stop sign, and stop light. Instructors should review the right-of-way rules for these types of intersections and the difference between stop and yield (see *Lesson 7* for more information).

# Riding with traffic

Adult volunteers assist at critical decision making points on course and remind students to:

- Use both brakes while braking
- Look left, right and left again at the end of driveways and at stop signs
- Turn left properly and with care
- Follow right-of-way rules
- Use hand signals



*Example of an on-street safety course exercise with 3 right turns, 1 left turn, and straight options*



## MOVING THROUGH INTERSECTIONS

*Although instructors should introduce this exercise, remember that intersections will be the focus of Lesson 7 and provide a good deal of time for practice.*

.....  
**MATERIALS**

- See above discussion “Introduction to Intersections”

.....  
**RIDING ACTIVITY LAYOUT**

See above discussion “Introduction to Intersections”.

.....

**WHAT:** On-the-bike activity to practice right turns through an intersection.

**PURPOSE:** This introduction to intersections is the first element in a series of discussions and activities to teach students the proper method of moving through an intersection. Moving through an intersection is complex and essential for safe riding.

Instructors should verbalize and then demonstrate each turning procedure before having students run the exercise.

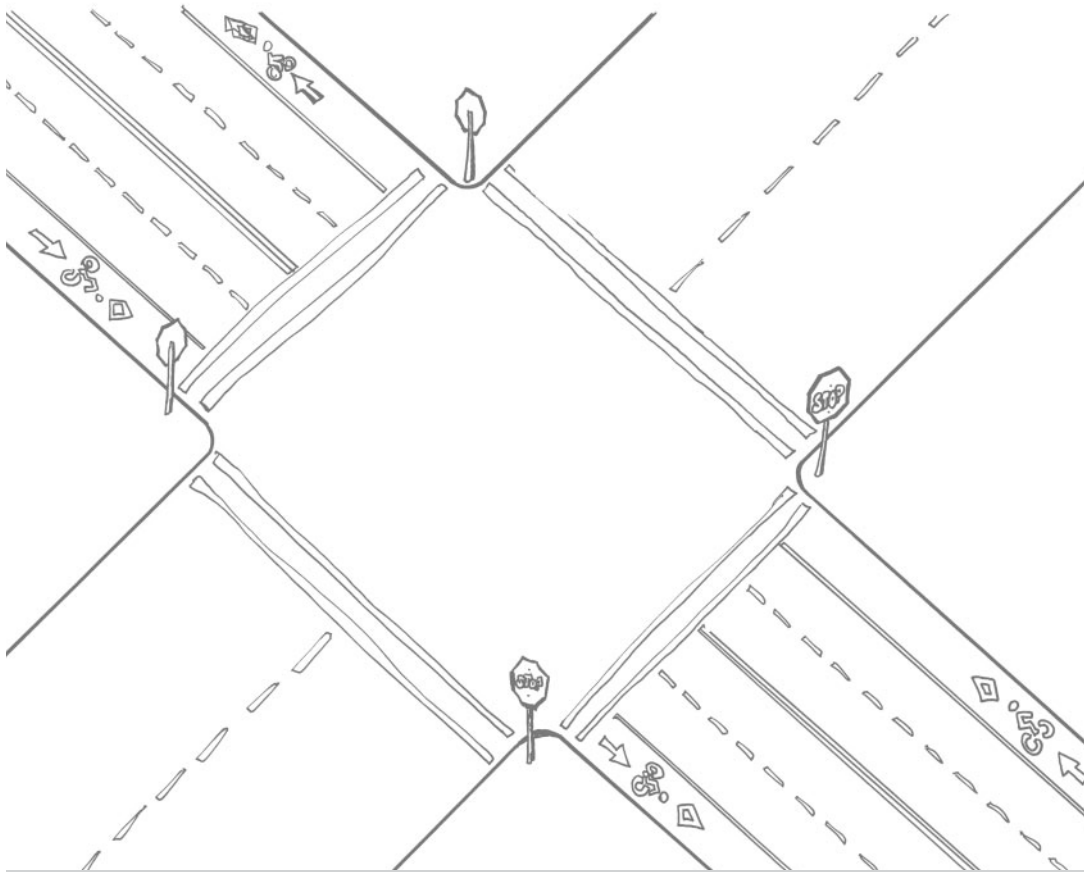
### *Right turn*

- 1 Split the students into four groups around the intersection.
- 2 Cyclists will ride up to the intersection on the normal side (right side) of the road and signal right.
- 3 They should stop, look for traffic and pedestrians. Volunteers or students not participating can act as pedestrians.
- 4 Cyclists should turn into the street just like they did in the driveway demonstration.
- 5 After making the turn, students should stop and line up to go again starting from the new street.

### *Straight*

- 1 If time permits, introduce riding straight activity.
- 2 Remove two of the stop signs that are across from each other.
- 3 Students will maintain the same positions and practice straight and right turns simultaneously.
- 4 Have students alternate between right and straight movements through the intersection. This movement should alternate regardless of the traffic sign.
- 5 Right-of-way conflicts occur. Stop the exercise and discuss the right-of-way conflicts. What is the proper thing to do? Continue the activity.

# Intersections



OVERVIEW

## LESSON 7

? 5 MINUTES	<b>Warm-up</b>	64
? 10 MINUTES	<b>Introduction to intersections</b>	64
! 15 MINUTES	<b>Moving through intersections</b>	65
! 25 MINUTES	<b>Three left turns</b>	67
! 15 MINUTES	<b>Intersections — putting it all together</b>	68
! 15 MINUTES <i>Optional</i>	<b>Intersection practice</b>	69

### EQUIPMENT

- Stoptlight prop (2)
- Stop signs (4)
- Yield signs (2)
- Fleet of bicycles
- Bicycle helmets
- Sidewalk chalk
- Cones
- Pumps, tools, flat tire repair kit

STATEWIDE EDUCATION GOALS

### Purpose:

This lesson focuses specifically on teaching how to properly maneuver through intersections on the bicycle.

### Topics covered:

- Introduction to intersection types
- Riding and turning through intersections

### Preparation notes:

This lesson is best taught on a real street. For this lesson, the intersection could be blocked off by police markers or cones can be put down for increased visibility. The street only needs to have 25' on each side of the intersection.

Blocking off an intersection can cause trouble for travelling automobiles, so choose a lightly traveled neighborhood street. On-street parking could also be an issue.

### Health

#### Controllable health risks

- Understand and apply prevention and risk reduction strategies

#### Safe and healthy environment

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

#### Healthy relationships

- Communication to enhance safety

### Physical education

#### Expressive and efficient movement

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement
- Demonstrate basic strategies specific to one team activity and one dual or individual activity
- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

#### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Intersections

BACKGROUND

LESSON



## WARM UP

Who rode a bike to school today?

Review traffic signs. Do a bike, helmet and clothing check.

**WHAT:** A discussion to fully explain the types of intersections.

**PURPOSE:** Have students understand the types of intersections so they can properly maneuver through them.

### Right of way rules

**First to stop:** First person at the intersection goes through the intersection first.

**Right goes first:** When two cars get to the intersection at the same time, the person on the right goes first.

**Straight goes first:** When two people are directly across from each other, the one that is going straight goes first.



## INTRODUCTION TO INTERSECTIONS

*(continued from Lesson 6)*

### *Types of Intersections*

**UNCONTROLLED:** an uncontrolled intersection does not have signs or a stop light. Riders must slow down at these intersections (as if everyone has a yield sign) and decide if they have the Right of Way to go through. Remember the ROW rules (see *Lesson 4*). Regardless of the intersection type, walkers always have ROW.

**SIGNED:** signed intersections will generally have two or four signs. Many intersections will only have two stop signs. The people with no signs go through the intersection slowly (as if they had a yield sign) but the cyclists who have the stop signs must wait until all cars and pedestrians in the non-signed lanes have passed. If there are four stop signs, all cyclists have to stop and the normal right of way rules apply. Remember a stop sign has to stop for a yield sign.

**LIGHTED:** you know this? Red means stop. Green means go. Yellow means slow and stop. So, if you are approaching an intersection and the light turns yellow — STOP. But never stop in the middle of the intersection, even if the light turns yellow. Cyclists can usually take a right turn on red; the only time they are prohibited is when a sign says so. (They can also take a left on red as long as they are going onto a one-way street).



## MOVING THROUGH INTERSECTIONS

*(continued from Lesson 6)*

### MATERIALS

- Volunteers to direct students
- Citations
- Bikes
- Helmets
- Stop signs
- Street lights
- Yield sign
- Sidewalk chalk

### RIDING ACTIVITY LAYOUT

A similar layout is needed to the one used in *Lesson 6*. An intersection is needed, along with the use of at least 25 feet of the adjacent four streets (*Note: In Lesson 6, a 75-foot street was required*). It is best to have one street or the intersection completely blocked off so the class can convene and discuss ideas in this area.

Begin this activity with the right turn. Next, proceeding straight through an intersection; and lastly the left turn. During this exercise, instructors should also incorporate the three types of intersections: uncontrolled, signed and lighted intersections. Instructors should verbalize and then demonstrate each turning procedure before having students attempt the activity.

### *Right turn*

*Note: This exercise will be the same set-up as in Lesson 6 except that each travel lane should have a stop sign.*

- 1 Review driveway and intersection etiquette, hand signals, and where to ride on the street.
- 2 Split the students into four groups around the intersection and place a stop sign at each corner.
- 3 Cyclists will begin 25 feet away and bike up to the intersection on the normal side (right side) of the road, stop and signal right.
- 4 Before progressing, cyclists should stop, look for traffic and pedestrians.
- 5 They should turn out just like they did in the intersection demonstration.
- 6 After making the turn, students should line up to go again.
- 7 Volunteers and extra students can act as pedestrians walking across the exercise.

**WHAT:** This lesson will again address right turns and straight maneuvers through intersections. The activities will pick up where they left off on *Lesson 6*. This activity will review driveway and intersection etiquette, hand signals, and where to ride on the street.

**PURPOSE:** to train students the proper method of moving through an intersection.

See the above discussion for intersection types.

## *Straight*

- ➊ Remove two of the stop signs that are across from each other.
- ➋ Students will maintain the same positions and practice straight and right turns simultaneously.
- ➌ Have students alternate between right and straight movements through the intersection.
- ➍ Right-of-way conflicts occur. Stop the exercise and discuss the right-of-way conflicts and the solutions. Remember the rules from *Lesson 4* — when conflicts of right-of-way occur, such as two vehicles approaching a four-way stop, the first to intersection goes first, then vehicle to the right goes first, and then straight goes first. Continue the activity.

## *Left turns*

See next activity.





## THREE LEFT TURNS

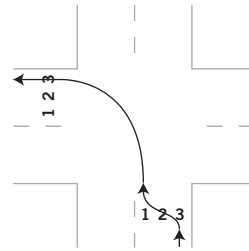
MATERIALS

- Same as last activity

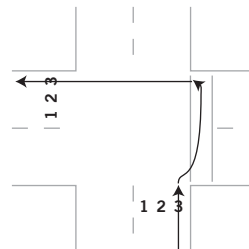
RIDING ACTIVITY LAYOUT

Same as above intersection exercise.

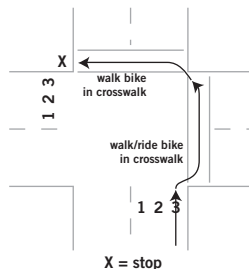
*Conventional:* the conventional turn (see graphic) requires cyclist to look back, hand signal, look back again, and position themselves in the left side of the lane (or in the left lane of the roadway). They will stop at stop signs, scan for and yield to oncoming traffic. The bicyclist will then turn into the opposite lane and end up on the right side of that lane in position 3, the same position they would be when riding. This type of turn is not advisable for riders ages 8 and under or for inexperienced riders in high traffic.



*Two corners:* the two-corner turn allows the bicyclist to stay at the right side of the travel lane (I use this when the road is really wide. Where there is busy traffic, there is also usually a traffic light at the intersection). Riders should use the stopping hand signal and ride slowly through the crosswalk to the corner of the street. Then the cyclist repositions their bike in the street with the rest of the traffic and rides straight through the intersection when the light turns green or they have the right-of-way.



*Pedestrian:* when cyclists cross as a pedestrian, they first walk or ride slowly through the crosswalk (as in the Two Corners turn) then dismount their bike. Bicyclists then become pedestrians and walk their bike to the next corner. Cyclists will tend to do this when their end destination is at that far corner of the intersection.



**WHAT:** This lesson will teach the three methods of turning left through intersections.

**PURPOSE:** To train students the proper method of moving through an intersection.

The left turn is a little more complicated than the right turn. There are three ways to make a left turn and each is important to use in a particular situation. Even the best cyclists will often use the “two corner” or pedestrian style turn in very heavy traffic, or for example if they want to go to the mail box on the opposite corner (demonstrate this).

- 1 Instructors should demonstrate each type of left turn individually and have the students practice in a similar fashion to running the above right and straight turns.
- 2 After the students master one turn, the instructor should explain and have students attempt the next.

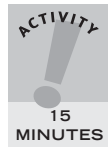
# Intersections

BACKGROUND

LESSON

**WHAT:** This is a culmination activity of the three turn types and the different types of intersections.

**PURPOSE:** To give students an opportunity to practice the various intersection scenarios that they faced.



## INTERSECTIONS — PUTTING IT ALL TOGETHER

.....  
RIDING ACTIVITY LAYOUT

- Same course as intersection exercises
- .....

- ➊ Instruct and coordinate final activity.
- ➋ Instructors should coordinate changing the intersection types. When there are street lights, have only one instructor hold it in the middle of the intersection.
- ➌ Students will be divided into four groups again. They should do:
  - two right turns
  - two straight maneuvers
  - two left turns, in that order.

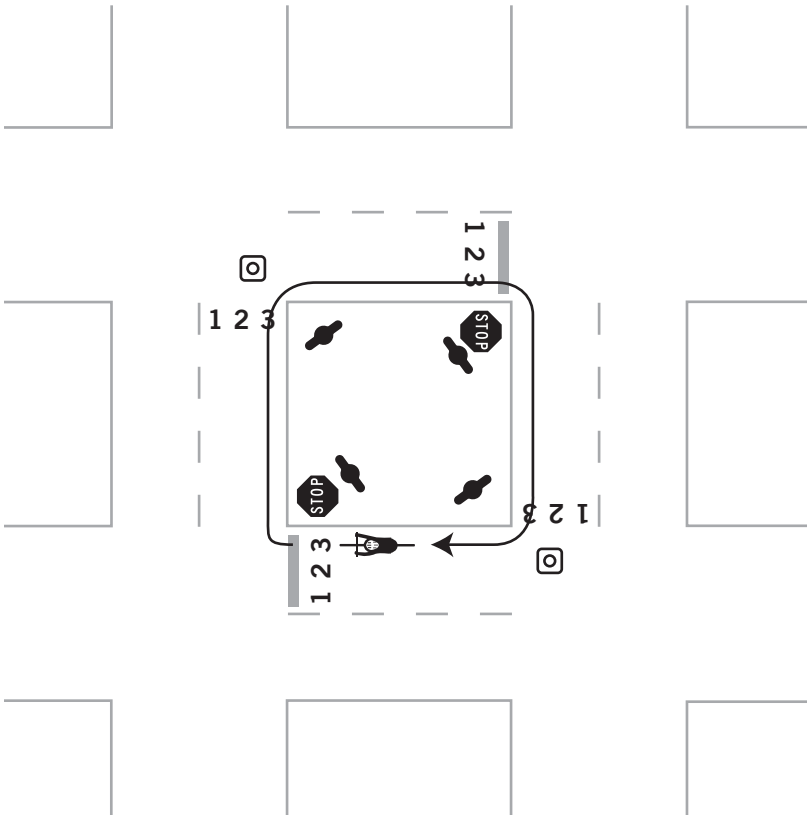
This is a continuous activity and students should continue it for a while. Students that break laws, do not signal, do not properly stop may be given a violation by an instructor.



## INTERSECTION PRACTICE

*Optional*

Ride around a block and make continuous left or right turn movements.



*Sample course for 4 continuous right hand turns. Three volunteers plus 1 instructor required for supervision. Cones are used to remind students to keep right turns tight.*

# Intersections

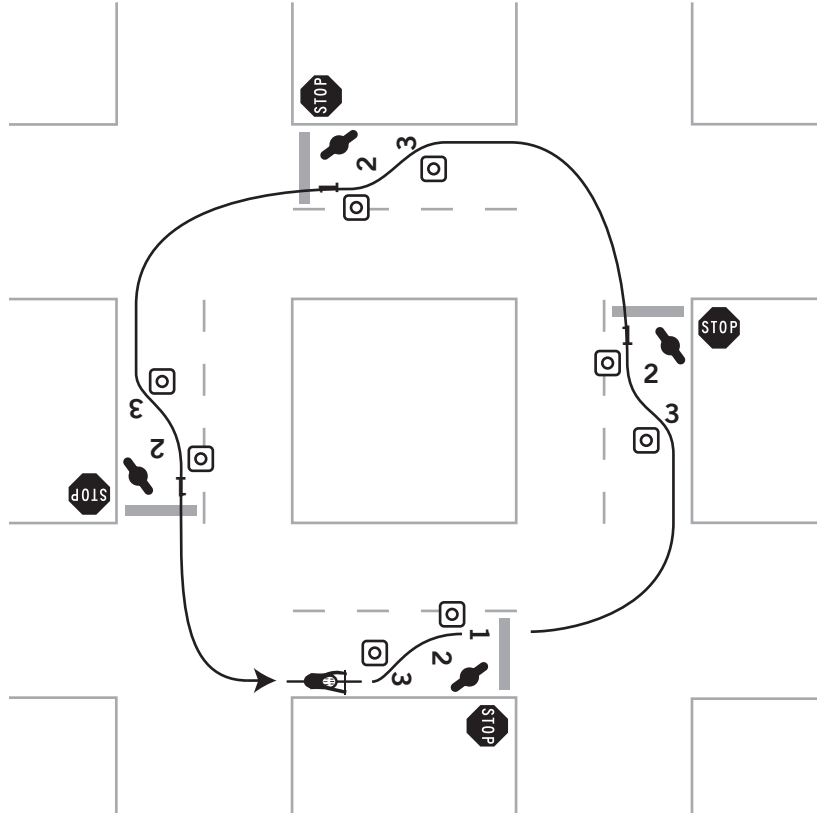
BACKGROUND

LESSON

Adult volunteers need to reinforce:

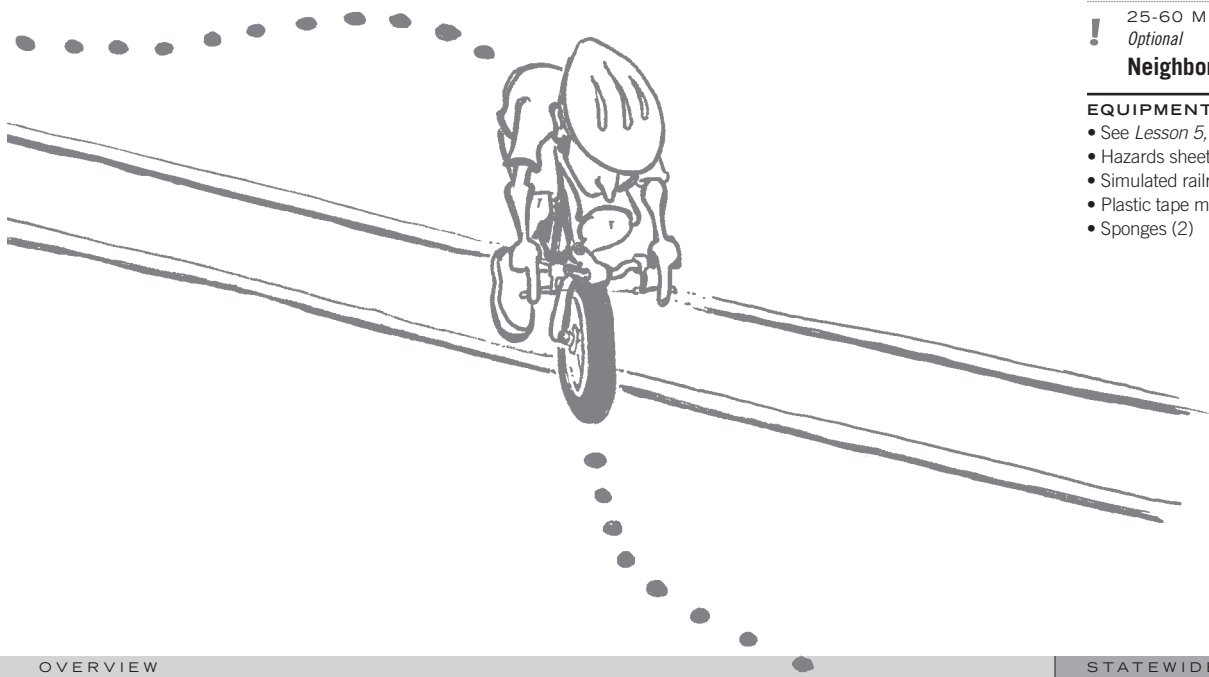
- Looking back for traffic
- Signalling
- Moving to position 1
- Following right-of-way rules

## Continuous Left Turns



*Sample course for 4 continuous left hand turns. Three volunteers plus 1 instructor required for supervision*

# Hazards and emergency avoidance



## LESSON 8

?	10 MINUTES	
	<b>Hazards</b>	72
!	5 MINUTES	
	<b>Railroad tracks</b>	73
!	15 MINUTES	
	<b>Emergency stop</b>	74
!	15 MINUTES	
	<b>Rock dodge</b>	75
!	15 MINUTES	
	<b>Quick turn</b>	76
!	25-60 MINUTES	
	<i>Optional</i>	
	<b>Neighborhood ride</b>	77

- EQUIPMENT**
- See *Lesson 5*, through “repair kit, tool,…”
  - Hazards sheet (revisited, *Lesson 4*)
  - Simulated railroad tracks, glass
  - Plastic tape measure
  - Sponges (2)

### OVERVIEW

**Purpose:**

This lesson discusses the hazards that might be encountered when cycling and techniques to avoid those hazards.

**Topics covered:**

- Hazards
- Avoidance maneuvers (railroad tracks, rock dodge, emergency stop, and quick turn)
- Neighborhood ride

**Preparation notes:**

This lesson is taught on the playground/blacktop.

Teachers should consider this lesson optional since emergency maneuver skills are for students with high levels of bicycle skill. Teachers who want to avoid this lesson should take the students for a neighborhood ride, in which case teachers must have volunteers, or can delete the lesson altogether.

### STATEWIDE EDUCATION GOALS

**Health**

**Controllable health risks**

- Understand and apply prevention and risk reduction strategies
- Apply movement concepts and principles to learning and developing motor skills

**Safe and healthy environment**

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

**Healthy relationships**

- Communication to enhance safety

**Physical education**

**Expressive and efficient movement**

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement

**Self-management and social behavior**

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Hazards and emergency avoidance

BACKGROUND

LESSON

**WHAT:** A discussion / review of the hazards encountered while riding a bicycle.

**PURPOSE:** To enable students to identify bicycling hazards so they can avoid them.



## HAZARDS, REVISITED

**1** Hazards can be surface, collision and visual. Can the class name any of the hazards from any three categories? The Hazards *handout (Lesson 3)* depicts many.

- Surface hazards include glass, storm grates, potholes, railroad tracks, rain, ice, leaves, or other obstructions on the road surface.
- Collision hazards include turning cars, other bikers, pedestrians, dogs, and trains. Also included are parked cars with opening doors.
- Visual hazards include obstructions to view such as bushes, fences, other cars, buildings, and too little light at night.

**2** Distribute the Hazards *handout sheet* (if students have not completed it in a prior lesson). Have each student circle the hazards and list them on the bottom of the sheet.

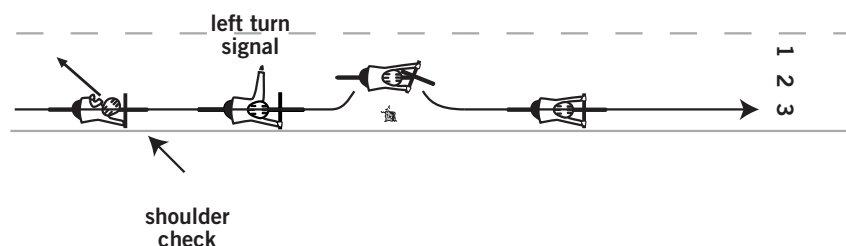
**3** Discuss recognition and avoidance of the hazards with the class.

**4** Demonstrate how Position 2 is used to avoid hazards.

**5** Talk about other problems including:

- Shoelaces caught in the pedals — just stop pedaling and brake. The bike won't fall if the rider stops pedaling.
- Carrying too much — don't carry too much, book bags, etc. because the weight will make it hard to handle the bike.
- Use a backpack, don't put baseball gloves on the handle bars.
- Ride with only one person on the bike!
- Riding at night — bicyclists must use white headlights and red rear taillights and/or reflectors.

**6** Once they are briefed on hazards, it's time to take them on the bikes.





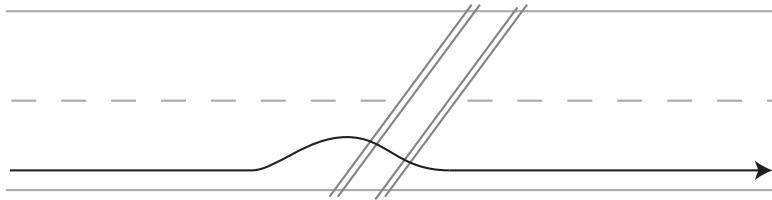
## RAILROAD TRACKS

### MATERIALS

- 8 thin, narrow boards for mock railroad tracks
- Chalk for lines on pavement (if needed)

### RIDING ACTIVITY LAYOUT

Use the Basic Course Layout. Sixty feet down the course, place two narrow boards parallel to each other at a 45 degree angle to the bicyclists' path on the lines between lanes 1 and 2, 3 and 4, and 5 and 6. Because the boards will be placed between two lanes, each of the three groups will be able to execute the activity using two lanes, no more.



- 1 Lay the mock railroad tracks at a 45 degree angle to the riding path of the students on the lines between lanes 1-2, 3-4, and 5-6. Form three lines of students. (This activity will go fast).
- 2 Explain the hazards of railroad tracks and how to avoid them. Explain that a cyclist must control the front tire in order to pull out of tracks or other crashing situations.
- 3 Line students up in between the lanes that have railroad tracks. Students will ride down the lanes and perpendicularly over the mock railroad tracks. Only one student should go at a time per line.
- 4 If there is time, students should check over their shoulders before swerving to get perpendicular to the track.
- 5 When students successfully complete the exercise, remove mock railroad tracks and go on to next exercise.

**WHAT:** A simple exercise teaching how to cross railroad tracks.

**PURPOSE:** Allows students to be able to identify bicycling hazards so they can avoid them

Railroad tracks are a hazard for bicycles because the tires can get caught in the tracks causing the bicyclist to fall. To avoid this, bicycles must cross railroad tracks at a right angle. So when there are diagonal railroad tracks the bicyclist must do a little swerving to not get caught in the tracks.

Important concept — if your front tire gets caught in tracks, or if you hit a big pot hole, curb, etc., your only chance of not crashing is to keep control of the front wheel. Hold tightly onto the handle bars and try to force yourself out of the tracks by turning your tire sideways to the track, then pedal out!

Bringing the students to real tracks during the street rides (if possible) is beneficial for reinforcement.

# Hazards and emergency avoidance

BACKGROUND

LESSON

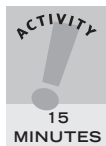
**WHAT:** An activity to teach students to stop quickly in order to avoid a crash.

**PURPOSE:** Emergency stopping is used in situations when you need to stop fast. This activity will introduce youths to emergency stopping so they may avoid a car, people or hazards.

Many hazards can be avoided by good planning. Usually you avoid a crash at an intersection by following the laws and going through it slowly. But other times the hazards are very sudden, and to avoid them you must apply an emergency maneuver.

These include the emergency stop, rock dodge and quick turn.

The emergency stop is often useful when a car unexpectedly pulls out of a driveway and can not be avoided via swerving. The emergency stop is not the end-all maneuver to avoid accidents. We will cover other important maneuver in the following exercises.



## EMERGENCY STOP

### MATERIALS (OPTIONAL)

- Tape measure
- Stopping distance sheet
- Chalk
- Pencil

### RIDING ACTIVITY LAYOUT

Use the same lane setup as for the railroad tracks exercise, except have only two groups go at a time. Place a perpendicular line halfway down the cycle lane as an indicator to where students should start their stop. The stopping line should be placed between 80 and 150 feet from the start depending on the size of the blacktop area. There should be at least 20 feet after stop line.

### Teacher instructions

- 1 Discuss stopping, emergency stopping and basic hazard avoidance.
- 2 Demonstrate stopping distance using three types of stops:

**Normal stop** — when we stop our bikes, we should apply 3 times greater force to the front brake than the back (pull brake lever 3 times harder). Why? Because the front slows us down the fastest!

**Hard stop with skidding** — if we stop by using only the back brake, we tend to skid. Why do you think it is so easy to skid on a bike with coaster brakes? (Because they only have back brakes.)

**Emergency stop** — to stop faster you have to apply more front brake. The best emergency stop will use a lot of front brake pressure and little back brake pressure. If we skid with our back brake we are pressing too much on our back brake. BUT, DON'T APPLY ONLY FRONT BRAKE OR YOU WILL FLIP OVER YOUR HANDLE BARS! So be careful. Also, to stop well you must drop your body and shift your weight to the back over the rear wheel.

- 3 Have a student with a tape measure to measure how many feet it takes to stop for each different type of stop, and record it on a record sheet. The emergency stop should be the fastest. (*Optional*)

### Student instructions

- 1 Line two groups on lines in between lanes 1-2 and 5-6. Have two groups start and pedal to gain some speed.
- 2 At the stopping line have the students apply the brakes to try to stop quickly.
- 3 Don't allow students to intentionally skid their back tires.
- 4 Have the left lane of students return to their lines to the left and right lane return to the right.

*Note: Students with coaster brakes on their bikes should not use them for this exercise. Have them share bikes with another group.*





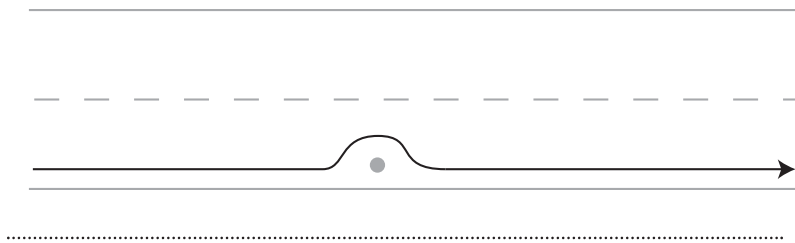
## ROCK DODGE

### MATERIALS

- 8 sponges

### RIDING ACTIVITY LAYOUT

Use same layout as in Emergency Stopping. Place sponges at the 80 foot mark in between lanes 1 - 2 and 5 - 6.



- 1 First demonstrate the physics of turning, that turning doesn't just happen with the handle bars but with a transference of weight from the seat area.
- 2 Place the sponge at the 80 foot line so that students can get up a little speed before this exercise.
- 3 Demonstrate while riding and have students in two lines.
- 4 Have students walk their bike a short distance first in a straight line while holding the seat (this may take a little practice) then practice turning by tilting the bike in the opposite direction and jerking it back.
- 5 Lastly, practice the activity on the bike, ensure that groups have adequate room between each other and that each student points the rock to communicate rock in the way.
- 6 Have left lane peel back left and right lane peel back right (have volunteers standing at the end of the exercise directing this).

**WHAT:** An activity where students learn to make a quick emergency maneuver that will help them avoid debris lying in their path.

**PURPOSE:** Rock dodges are used to avoid hazards on the road that can puncture your tire or make you fall. The need for a dodge will usually occur if you haven't seen the hazard until you are very close to it. This maneuver must be practiced and will help prevent accidents.

The concept behind a rock dodge is that you move your bike not by turning the handle bars but by distributing weight properly on your bike frame. Demonstrate while holding the bike seat — to avoid a hazard quickly, one must get the bike to swerve quickly. Just before you reach a hazard, you are going to turn your handle bars away from the object (say right) — this forces the rider in the opposite direction, and quickly snap the handle bars back straight — this puts the bicycle under you and around the object. If your rear wheel hits the object it is o.k., because it is the loss of control of your front wheel which makes you wipe out.

When riding in groups, the first person should point to a rock or other debris on the road so the other cyclists know it is there.

# Hazards and emergency avoidance

BACKGROUND

LESSON

**WHAT:** Quick turn is a similar activity to rock dodge but the rider doesn't continue in a straight line, rather turns with the automobile.

**PURPOSE:** This difficult maneuver is vital in a situation where a car unexpectedly takes a right turn in front of the bicyclist. There is often not time to stop so the bicyclist must follow the path of the car (see diagram).

Making a quick turn is similar to making a rock dodge. If the rider wants to turn hard right, they must snap their wheel left to get their body leaning right, then after a 1/10 of a second or so turn back right and you will take a right turn. The main difference here is that the cyclist aims to turn right instead of keeping straight.



## QUICK TURN

### MATERIALS

- See Rock Dodge activity

### RIDING ACTIVITY LAYOUT

Use same layout the Basic Course Layout, as in Rock Dodge. If there is ample space to conduct two simultaneous activities, have two rows that run in opposite directions. Therefore leave one sponge at 80 feet and move the other to 25 feet from start line. Then move the group whose sponge is at 25 feet to begin at the finish line. If there is not ample room for two simultaneous activities, have only one lane to avoid collisions.



- 1 Leave one sponge (e.g. between lanes 1-2) at 80 feet and move other sponge (e.g. between lanes 5-6) to 25 feet so the two groups of students can do the activity going in opposite directions.
- 2 Explain and demonstrate the turn; practice the turn only to the right.
- 3 Move one group of students to the finish. Students will ride down lines where the sponge is, execute the quick turn by turning right and ride back to beginning of the line.
- 4 If the teacher desires, move sponges so students can try left turns.



## NEIGHBORHOOD RIDE

*Optional*

*Run a neighborhood ride if time permits or if students do not have the cycling skill level to perform emergency maneuvers.*

### MATERIALS

- Bright safety vests for leaders and sweeps
- Bicycles
- Watch for each group ride leader
- Pump (1 per group)
- Repair tools (1 per group)
- Helmets
- Patch kits (1 per group)
- Safety kit (1 per group)
- Cell phone/walkie talkies

- 1 Have students organized in groups for riding. Each must have a helmet and a bike. Ride leaders must have safety vests and one adult per group wears a pack with tools and a safety kit.
- 2 Communicate to the class the riding activity and the riding rules (see *Background* column).
- 3 Assign groups of students to adults (see *Background* column for strategies).
- 4 Allow each group to go for at least 20-minute ride. If there is plenty of staff, the rides can be longer (or to a destination where we stop and play, get ice cream, etc).
- 5 Upon returning, debrief.

### WHAT TO BRING ON A RIDE

- Cell phone / walkie-talkies
- First aid kit
- Water

**WHAT:** This activity combines all the skills of safe bicycling and puts them into practical application in a neighborhood setting.

**PURPOSE:** To give the students exposure to cycling in traffic and enforces proper cycling technique.

### On-street ride

The on-street ride is preferred to a bicycle rodeo because students practice skills while gaining confidence of proper on-road cycling. To coordinate rides, teachers must obtain prior approval by administration and parents using normal field trip procedures. Teachers should also recruit volunteers ride leaders. A ratio of one adult to five students is ideal, but adults can usually handle seven student cyclists.

When planning group rides, one of two basic riding strategies should be taken:

**Small groups** – each adult leads as small a group as possible. The adult either rides in front or back of the group, communicating with students to keep right, hand signal and facilitating communication among each other. In small groups, adults should allow each student to negotiate intersection movements independently. At stop signs, adults can stand to the left of students, coaching them through intersections. Students should be told to wait a couple of hundred feet up the road for the rest of the group. The advantage of small groups is that students learn a more realistic sense of cycling in traffic.

**Large groups** – classes are broken into groups of 10-15 children and two or three adults per group. Students negotiate intersections as individuals but often are waived on by automobiles, or fail to properly stop at stop signs because the cyclist before them just went through. Adults should be spread out among the group.

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# Hazards and emergency avoidance

BACKGROUND

LESSON

*(continued from previous page)*

**Combo groups** – A good method is to combine the two styles. Small groups of students, each supervised by one adult, ride the same routes but are separated by a few moments and remain in eye-sight of each other. This will give teachers more ability to supervise their entire class while allowing youth the ability to negotiate intersections in small groups. The drawback is that front groups often have to wait for rear groups.

## **Ride leaders and sweeps**

Each ride should have a leader who knows the route and is an expert at bicycling and managing the large group of students. The ride leader's responsibility is to ensure that the groups of riders do not get lost behind. The rider leader must wait when later groups are not in sight. A general rule is that the ride leader should be able to see at least half the class.

Ride sweeps should carry a cell phone, emergency equipment and repair tools. The ride sweep is often the lead teacher or responsible bicycle advocate. The ride sweep is responsible for managing any problem that arises including injuries and mechanical failures. Having walkie-talkie communication for sweeps and the ride leader is useful to avoid separation.

## **Routes and logistics**

Rides should begin on low to medium traffic streets around the community, distance depending on time. Rides can be led on higher traffic streets as students improve in skill. Teachers will want to consider routing and meet with volunteers at least 15 minutes before class to discuss routes (maps are helpful) and group riding strategy. Teachers should also have reflective vests, patch kits and medical kits for adults to carry. Teachers may have pre-marked the riding course with signs such as "Bicycle Event" placed around the course. Another idea on long rides is to recruit parents to stand at important intersections and guide groups, ensuring that they keep on the designated course and acting a check-in posts. If you do this, make sure to tell the volunteers how many groups they should expect to see passing.

## NEIGHBORHOOD RIDE GUIDELINES

### *Laws*

- All riders must wear an approved helmet, fitted properly.
- Bicycles are vehicles and must follow same laws that apply to motor vehicles.
- When riding on the roadway, ride as far to the right as is safe.

### *Group Riding Techniques*

- Take responsibility for yourself. Don't just follow the leader, especially when crossing streets, driveways or intersections. If a traffic light turns yellow and half of the group rides through, you should stop and they will wait.
- Ride single file and ride on the right, pass on the left. (Limit passing on group ride).
- Communicate with other riders verbally and with hand signals (left and right turns, stops, hazards, slowing, passing).
- Ride as a group, but leave at least one bike length between you and the next rider. When passing another rider, give verbal warning "PASSING" or "ON YOUR LEFT".
- For left turns, consider traffic volume and skill levels to decide the best technique.
- The first and last rider (leader and sweep) wears retro-reflective material.
- Everyone pulls off to the right side of the roadway for discussions and rest stops.

# Neighborhood bike ride / Bike rodeo

## LESSON 9

?	5-10 MINUTES	
	<b>Physically fit lifestyle</b>	<b>80</b>
!	25-60 MINUTES	
	<b>Neighborhood ride</b>	<b>81</b>
!	25-60 MINUTES	
	<b>Bike rodeo</b>	<b>83</b>

### EQUIPMENT

- Post-test evaluation sheets
- Reflective vests for ride leaders
- Extra volunteers / 1/2-day substitute / teacher cover for class while group rides commence



### OVERVIEW

#### Purpose:

This lesson is a culmination of the program thus far. Students will use the skills they learned on the street and learn to ride in groups.

#### Topics covered:

- On-street bicycle riding
- or
- Bike rodeo

#### Preparation notes:

Teachers must get a substantial number of volunteers to run the on-street rides. Generally, the ratio should be 5 students to one adult or better. Police and fire departments can be contacted for volunteers. Teachers should talk with bike clubs, shops and advocacy organizations to get more volunteers.

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies

##### Safe and healthy environment

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

##### Healthy relationships

- Communication to enhance safety

#### Physical education

##### Expressive and efficient movement

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement
- Demonstrate basic strategies specific to one team activity and one dual or individual activity
- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

##### Fitness for lifetime

- Develop personal activity goals and describe benefits that result from regular participation in physical education
- Analyze and categorize physical activities according to potential fitness benefits

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Neighborhood bike ride / Bike rodeo

BACKGROUND

LESSON



## PHYSICALLY FIT LIFESTYLE

Riding a bike, walking, skating, scooting, and blading are all excellent ways to maintain an active and healthy lifestyle. In fact, national organizations, such as the National Centers for Disease Control, are working to increase bicycling and walking to school and work as a means of getting exercise. The Bike Safety Program and other programs nationwide are promoting and doing similar work with the same goals.

This curriculum works to empower students to ride safely so that they can start biking and walking to school on a daily basis. Hopefully the teachers can work internally to ensure that there is adequate bicycle parking and work with students to plan safe travel routes to school. Students and teachers should discuss their plans to bike and walk to school and the benefits of a daily exercise routine. Students should also have dialogues with their parents, and even request that their parents accompany them the first few times so that parents and children feel that the commute is safe.

Riding a bike and promoting cycling to students may be the most effective way to increase youth cycling to school. For more assistance on route planning and other safety considerations (in addition to this curriculum), call your local bicycle advocacy organization, most likely the BTA, the organization that brought this very curriculum to your classroom. These bicycling organizations may have programs, such as Safe Routes to Schools, which work with teachers, administration, students, and parents to getting children to school safely on their own two wheels (or feet).



## NEIGHBORHOOD RIDE

See Lesson 10 for post-testing during neighborhood rides

### MATERIALS

- Bright safety vests for leaders and sweeps
- Bicycles
- Watch for each group ride leader
- Pump (1 per group)
- Route directions
- Repair tools (1 per group)
- Helmets
- Patch kits (1 per group)
- Safety kit (1 per group)
- Cell phone / walkie-talkies

- 1 Have students organized in groups for riding. Each must have a helmet and a bike. Ride leaders must have vests and one adult per group wears a pack with tools and a safety kit.
- 2 Communicate to the class the riding activity and the riding rules (see *Background* column).
- 3 Assign groups of students to adults (see *Background* column for strategies).
- 4 Allow each group to go for at least 20-minute ride. If there is plenty of staff, the rides can be longer (or to a destination where we stop and play, get ice cream, etc).
- 5 Upon returning, debrief.

**WHAT:** This activity combines all the skills of safe bicycling and puts them into practical application in a neighborhood setting.

**PURPOSE:** To give the students exposure to cycling in traffic and enforce proper cycling technique.

### On-street ride

The on-street ride is preferred to a bicycle rodeo because students practice skills while gaining confidence of proper on-road cycling. To coordinate rides, teachers must obtain prior approval by administration and parents using normal field trip procedures. Teachers should also recruit volunteers ride leaders. A ratio of one adult to five students is ideal, but adults can usually handle seven student cyclists.

When planning group rides, one of two basic riding strategies should be taken:

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# Neighborhood bike ride / Bike rodeo

BACKGROUND

LESSON

*(continued from previous page)*

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## **Ride leaders and sweeps**

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## NEIGHBORHOOD RIDE GUIDELINES

### *Laws*

- All riders must wear an approved helmet, fitted properly.
- Bicycles are vehicles and must follow same laws that apply to motor vehicles.
- When riding on the roadway, ride as far to the right as is safe.

### *Group Riding Techniques*

- Take responsibility for yourself. Don't just follow the leader, especially when crossing streets, driveways or intersections. If a traffic light turns yellow and half of the group rides through, you should stop and they will wait.
- Ride single file and ride on the right, pass on the left. (Limit passing on group ride).
- Communicate with other riders verbally and with hand signals (left and right turns, stops, hazards, slowing, passing).
- Ride as a group, but leave at least one bike length between you and the next rider. When passing another rider, give verbal warning "PASSING".
- For left turns, consider traffic volume and skill levels to decide the best technique.
- The first and last rider (leader and sweep) wears retro-reflective material.
- Everyone pulls off to the right side of the roadway for discussions and rest stops.





## BICYCLE RODEO / POST-TEST

### MATERIALS

- Refer to prior lessons and activities

A good method for testing students' skills is to run a bike rodeo. At each station, an adult could have a score card with the students' names and a list of events in which they will be graded. Teachers should grade students "1" for excellent, "2" for satisfactory, and "3" for unsatisfactory. For more information, see *A Guide to Bicycle Rodeos*.

### *Order of events*

- 1 Helmet fit
- 2 Bicycle check
- 3 Snail race
- 4 One-handed riding
- 5 Bicycle slalom
- 6 Scanning
- 7 Railroad tracks obstacle course
- 8 Intersections and turns
- 9 Emergency stop
- 10 Rock dodge
- 11 Quick turn

**WHAT:** Bicycle rodeos are organized events with a series of stations that the students bicycle through to help reinforce the skills that were taught during the previous lessons. This rodeo consists mostly of the same exercises that were executed during the curriculum.

**PURPOSE:** To reinforce and test skills of students.

# Neighborhood ride and written test



## LESSON 10

?	5 MINUTES	
	<b>Last day</b>	<b>86</b>
!	15 MINUTES	
	<b>Written post-test</b>	<b>86</b>
!	40 MINUTES	
	<b>Neighborhood ride</b>	<b>87</b>
!	15-60 MINUTES	
	<b>Teacher evaluation for the Bicycle Safety Program</b>	<b>88</b>

### EQUIPMENT

- Post-test evaluation sheets
- Reflective vests for ride leaders
- Extra volunteers / 1/2-day substitute / teacher cover for class while group rides commence

### OVERVIEW

#### Purpose:

Students take a written test to test their comprehension of traffic rules.  
Students take another neighborhood ride to practice their road safety skills.

#### Topics:

- Written post-test
- Neighborhood ride

#### Preparation notes:

Again, teachers need a substantial number of volunteers to run the rides. An ideal riding group will be one adult for five students or two or three adults to each 10 students. One idea is for the teacher to recruit one person to stay with a half the class while they take the written test, allowing the other group to ride. Midway through the class those students can ride and the other comes in to take the test.

### STATEWIDE EDUCATION GOALS

#### Health

##### Controllable health risks

- Understand and apply prevention and risk reduction strategies

##### Safe and healthy environment

- Understand and apply strategies to improve and maintain health
- Apply injury prevention

##### Healthy relationships

- Communication to enhance safety

#### Physical education

##### Expressive and efficient movement

- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement
- Demonstrate basic strategies specific to one team activity and one dual or individual activity
- Demonstrate an understanding of the rules to be followed during participation in specified physical activities

##### Fitness for lifetime

- Develop personal activity goals and describe benefits that result from regular participation in physical education
- Analyze and categorize physical activities according to potential fitness benefits

##### Self-management and social behavior

- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

# Neighborhood ride / Written test

BACKGROUND

LESSON



## OUR LAST DAY

Let students know that this is the last day of the riding lesson. Hopefully it was fun and maybe now more people in the class will continue to ride their bikes to school and do it safely. The teacher should take final questions, comments, concerns, etc.



## WRITTEN POST-TEST

Administer the written post-test and collect journals. The post-tests, journals, and general behavior should be part of the grade for this program.

Use the pre and post-tests as an evaluation tool to measure the students' improvement and as one element for the teacher evaluation of this curriculum. Please see the next page for the full instructions for the teacher evaluation for the curriculum.

*\*In order to maximize riding time, teachers can administer the post-test in the class session following the ride.*



## NEIGHBORHOOD RIDE

### MATERIALS

- Bright safety vests for leaders and sweeps
- Bicycles
- Watch for each group ride leader
- Pump (1 per group)
- Repair tools (1 per group)
- Helmets
- Patch kits (1 per group)
- Safety kit (1 per group)

- 1 Have students organized in groups for riding. Each must have a helmet and a bike. Ride leaders must have vests and one adult per group wears a pack with tools and a safety kit.
- 2 Communicate to the class the riding activity and the riding rules (see *Lesson 9*).
- 3 Assign a group of 10 students to two adults (or one adult per five youths).
- 4 Allow each group to go for a 20-minute ride. If there is plenty of staff, the rides can be longer (or to a destination where we stop and play, get ice cream, etc).
- 5 Upon returning, debrief.

# Neighborhood ride / Written test

BACKGROUND

LESSON



## TEACHER EVALUATION FOR THE BICYCLE SAFETY PROGRAM

Please complete a evaluation of the Bicycle Safety Program. This evaluation will serve to make the program better and assist the Bicycle Transportation Alliance meet teachers' and students' needs.

In the Handouts chapter you will find an evaluation sheet that should take no more than 15 minutes to complete. Please fill this out and return to:

Bicycle Transportation Alliance  
P.O. Box 9072  
Portland, Oregon 97207  
Attn: Bicycle Safety

The BTA also requests that teachers who enjoyed this curriculum and felt it was valuable for their students write a letter in support of the program. The letter should be no more than two pages, written on school letterhead and co-signed by the school principal if possible. Letters of support could include the following topics:

1. *Course Content* — is the content appropriate, exciting and educational for your class?
2. *Experiences for Your Class* — did your students enjoy the class? Did they think it was an appropriate topic and experience for school.
3. *Potential for the Course* — would you run the course again? Is this something that more teachers should do? Might you recommend that bicycle safety is a necessary component of curriculum for 5th and 6th graders? Other age groups?
4. *Length of Course* — consider the appropriateness of a comprehensive course with on-bike training versus a one or two hour program with discussions of bike safety.
5. *Training* — were trainings helpful and necessary, or not?

# Additional learning resources

## RESOURCES

<b>Materials checksheet</b>	<b>90</b>
<b>How to acquire equipment</b>	<b>91</b>
<b>Contacts</b>	<b>92</b>
<b>Helmets resource list</b>	<b>94</b>
<b>Educational resources</b>	<b>95</b>
<b>Grant resources</b>	<b>97</b>

### OVERVIEW

This section provides information for the educator to help get the Bicycle Safety Program started. Information includes:

- A list of program materials
- How to acquire equipment
- Contacts
- Helmets resource list
- Educational resources
- Grant resources

### STATEWIDE EDUCATION GOALS

# Additional learning resources

BACKGROUND

List of equipment needed for entire curriculum. Does not include the things that can be obtained and need to be photocopied from the curriculum packet.

LESSON

## Materials checksheet

### PRE-LESSONS

- Permission slips
- Photocopied pre-tests
- Overheads

### VIDEOS

- VCR/TV
- First Gear*
- Other options:
  - Bicycle Zone*
  - Pedal Smarts*

### HELMET DROP

- Melon (ripe honey dew)
- Bicycle helmet (can be fairly old)
- Small tarp/trash bag
- Rags for cleaning

### HELMET FIT

- Bicycle helmets (30-40, various sizes)
- Masking tape
- Permanent marker
- Trash bags

### BICYCLE EQUIPMENT

- Nighttime gear (white light and blinking red light, reflectors, reflective tape)
- Rain gear (rain pants, rain jacket, plastic bags to contents dry)
- Bicycle (outfitted with fenders, reflectors, bike rack, lights, bell, toe clips, and pump)
- Pannier
- Bike stand (*optional*)
- Sample of bicycle system (e.g. brake system: brake lever, cable, housing, brake shoe, and brake pad)

### SAFETY CHECK AND FIT

- Fleet of bikes (15 or more)

### FLAT TIRE REPAIR

- Tire patch kits (for every 10 students: 5 patches, 3 tubes of glue, 5 pieces of sandpaper)
- Inner-tubes (1 per 2 students)
- Floor pumps (1 per 5 students)
- One basic repair kit (page 31)
- Pumice hand soap
- Shop rags

### BICYCLE LOCKING

- Bicycle locks (2 of each: U-lock, cable lock, chains, combination/key pad lock)

### RIDING SKILLS PROPS

- Fleet of bikes (15 or more)
- Cones (16)
- Stop signs (6)
- Lane striper / sidewalk chalk
- Railroad tracks (8) 2.5" x 1" x 6"
- Tape measure (50-foot flexible, 25-foot otherwise)
- Sponges (4)
- Car on street (*optional*)
- Reflective vests for all students
- Extra volunteers/half-day substitute/teacher cover for class while group rides commence

### EQUIPMENT FOR RIDE LEADERS

- Patching equipment and tubes
- Pump
- First aid kits
- Cell phone/walkie-talkies

## How to acquire equipment

The Bicycle Transportation Alliance is working with school districts to provide all or the bulk of the above materials. The total cost of the program, including 25 bikes, helmets, and other materials is approximately \$5,000.

Grants can be written to obtain bicycles and helmets for this program. Grant writing resources are available on page 97 of this resource chapter.

For more information, please contact:

Scott Bricker

Bicycle Transportation Alliance

P.O. Box 9072

Portland, Oregon 97207-9072

(503) 226-0676

[info@bta4bikes.org](mailto:info@bta4bikes.org)

[www.bta4bikes.org](http://www.bta4bikes.org)



## Contacts

**Bicycle Transportation Alliance:** A statewide bicycle advocacy organization, has regional branches. The BTA runs the Bicycle Safety Program and developed this curriculum.

*Contact: Scott Bricker, Education Director (503) 226-0676 x14*

**Oregon Department of Transportation (ODOT) Transportation Safety Division (TSD):** ODOT TSD has a Bicycle and Pedestrian Safety Program Coordinator. The Coordinator has materials and videos for distribution. *Contact: Rick Waring, Program Coordinator (503)986-4196*

**Safe Communities programs:** Safe Communities programs are work to improve traffic safety in local areas and cities. They often have staff and grant monies to help run safety programs. Contact the Oregon Department of Transportation for local branches. *Contact: Walt McCallister (503) 986-4187*

**City of Portland, Safe Communities Program:** The City of Portland is organizing a Safe Communities Program to bring together traffic safety professional in Portland. They are collecting data and helping run Safe Routes to Schools programs through mapping and engineering services. *Contact Dakota Inyoswan (503) 823-5552*

**Oregon Safe Kids Coalition:** State branch of national organization promoting child safety. Brochures and other material available; has regional branches. *Contact: Adrienne Greene, Department of Health Services - Human Services (503) 731-4025*

**Trauma Nurses Talk Tough:** Offers in-school assemblies and presentations on helmet and other safety in many communities around Oregon. Sells low-cost helmets. *Contact: Simone (503) 413-4960*

**Think First Program:** Offers K-12 injury prevention programs focusing on neurological injuries. *Contact: Rae Rosenberg (503) 494-7801*

**Alliance for Community Traffic Safety (ACTS Oregon):** ACTS works to increase traffic safety in Oregon. For bicycling programs, they offer mini-grant programs that can be applied for to purchase equipment or hire instructors to run bike safety curriculum. *Contact: Lynn Mutrie (503) 656-7207*

**Police Bureau and County Sheriff, traffic safety sections:** Each community will have officers that focus on traffic safety. Contact local bureau and ask for class presentations, bicycle rodeos, low-cost helmets, and explanation about enforcement techniques.

**Parks and Recreation Bureaus:** Parks and recreation bureaus or districts usually have education programs. They may have money to support after-school or summer safety, riding or repair programs. *Contact: Your city government Parks Bureau or local parks and recreation district*

**Universities:** University health education students can offer assistance as practicum credit. *Contact: Local university's education or health/physical education department*

**School Resources:** Consider your school's staff for presentations: nurses, community police officers, avid cyclists, and others.

**Physical Education Director:** Can provide general support for cycling education programs including monetary resources and coordination for the transport of bikes.

**AmeriCorps:** The NW Service Academy or other national AmeriCorps organizations places young adult members in schools as resource persons. *Contact: Portland based NW Service Academy (503) 736-9814 and ask about other AmeriCorps organizations throughout the state*

**Bicycle Shops:** Local bike shops often have written materials and information about local bicycle organizations and events. Employees may volunteer to discuss mechanics and lead rides. Shops might donate some materials. *Contact: Local bike shop managers*

**Bicycle Clubs/advocacy coalitions:** Many communities have local bicycle clubs with active volunteer members that will assist with your curriculum or provide a presentation on cycling.

**Bicycle Helmet Safety Institute:** National organization providing up-to-date information on helmets including statistics, guides to helmet promotions and fitting tips. *Contact: (703) 486-0100*

**Hospitals/Insurance Companies:** May have money for helmets or safety literature.

**City Planning Bureau:** Often interested in youth travel safety and may have ideas on getting volunteers or other local support. Often have free bike maps. Ask if they have Bicycle and Pedestrian advisory committees. *Contact: City government-planning department*

**Community Cycling Center (Portland):** A non-profit organization that has safety, riding and repair education programs. They run after-school and summer programs, some in-school activity. Offers low-cost bicycles and bicycle services. *Contact: Tom Knipe, Program Manager (503) 288-8864*

**Center for Appropriate Transport (Eugene):** a non-profit organization that has riding, repair, bike building, journalism and other education programs. They have school presentations, day-time educational services and a library. Offers low-cost bicycles and bicycle services. *Contact: Jan VanderTuin, Executive Director (541) 343-5568*

## OTHER

- Bicycling, environmental and safety related nonprofit organizations
- Community-based companies and businesses

# Additional learning resources

BACKGROUND

## Helmets resource list

### PURCHASING HELMETS WHOLESALE

Safe Tech, A Division of Troxel,  
7220 Trade St., #201  
San Diego, CA 92121  
(800) 288-4280  
Fax (858) 527-4888  
*Price: \$8.00-\$9.75 + shipping,  
no minimum purchase*

Bell Sports, Inc.  
Attn: Kathy Hoffman  
Route 136 East/ P.O. Box 927  
Rantoul, IL 61866  
(800) 494-4543 x260  
*Price: \$6.99, Minimum order 12,  
4 weeks for delivery*  
*\*see Oregon or local Safe Kids Campaign  
coordinator*

Center for Injury Prevention  
1007 Ellis Street  
Stevens Point, WI 54481  
(800) 344-7580  
*Price: \$7.50-\$7.95,  
free shipping with order over 20  
2-3 weeks for delivery*

CNS National Helmet Program  
18370 Olympic Ave. S.  
Tukwila, WA 98188  
(800) 642-3123  
*Price: \$6.95, no minimum,  
free shipping with order over 20  
2-3 weeks for delivery*

Helmets R Us  
2705 Pacific Avenue  
Tacoma, WA 98402  
(253) 627-2121  
*Price: \$5.00, plus shipping  
2-4 day for delivery*

### PURCHASING SINGLE HELMETS

Local bicycle shop

Hospital program – Trauma Nurses  
Talk Tough, Emanuel, OHSU

Local police and county sheriff

### HELMET INFORMATION

Bicycle Transportation Alliance  
(503) 226-0676

Bicycle Helmet Safety Institute  
(703) 486-0100

### BROCHURE

*Easy Steps for a Perfectly Fitted  
Helmet.* Oregon Department of  
Transportation. 1999. A brochure  
detailing the process of correctly  
fitting a bicycle helmet. Includes  
photos that depict each step of the  
process for clarity. *Contact: Rick  
Waring, (503) 986-4196.*

## Educational resources

### CURRICULUM

*Transportation Alternatives and Solutions.* Bicycle Transportation Alliance. This is an 10-hour in-class science and social science based curriculum that discusses the history and different modes of transportation. The practicality and environmental impacts of the different forms of transportation are also discussed. *Contact: (503) 226-0676*

*Safe Routes to School 2002.* Provides overview of a national Safe Routes to School model. U.S. DOT. *Contact BTA (503) 226-0676*

*Basics of Bicycling.* National Center for Bicycling and Walking. A curriculum for elementary level bicyclists training, offers on-bicycle training. 1506 21 St. NW, Suite 2000, Washington D.C. 20036. *(202) 463-6622*

*Bike Smarts: A handbook.* Insurance Corporation of B.C. 1998. The curriculum is a on bicycle education program for 7-13 year olds. *Contact: Bike Smarts Team, #228 - 1367 W. Broadway, Vancouver, B.C. V6H 4A9. (800) 565-7727*

*Creating Livable Communities.* Fall 1998. This curriculum contains lesson plans for grades 6-8 about land use and transportation planning, the environment, and population/housing. *Contact: Metro, 600 NE Grand Avenue, Portland, Oregon 97232. (503) 797-1700*

*Traffic Safety Education Guide.* Florida Traffic and Bicycle Safety Education Program. 1998. This curriculum is a comprehensive education program providing on-bicycle training, one of the curriculum used to structure the lesson plans included in this book. *Contact: Liza Lemaster (352) 392-8192*

*Effective Cycling: Kids I and II.* League of American Bicyclists. 1996. Kids I teaches adults to train their children and Kids II is a comprehensive education program offering on-bicycle training. *Contact: Sami Founder (202) 822-1333.*

*Smart Cycling.* Oregon Department of Transportation. 1992. A seven lesson on-the-bicycle curriculum. *Contact: (503) 986-4196.*

*Get Out Spoken.* This curriculum mobilizes school youths to advocate for bicycle transportation. *Contact: Earth Force, 1908 Mount Vernon Ave., 2nd Floor, Alexandria, Virginia 22301. (703) 299-9400*

### PAMPHLETS / BROCHURES

*Safe Routes for Kids City Biking Handbook.* Bicycle Transportation Alliance. 2001. A 12-page booklet that illustrates the essential aspects of bicycling safety. It is full of graphics and easy to understand. Geared for ages 10 and up. *Contact: (503) 226-0676*

*Safe Routes for Kids Guide to Biking in the City.* Bicycle Transportation Alliance. 2001. A four-panel brochure that summarizes the information provided in the *City Biking Handbook*. Geared for ages 10 and up. Available in Spanish. *Contact: (503) 226-0676*

*Alaska Bicycle Driver's Guide.* Alaska Department of Public Safety. 1996. A 48-page, 8 1/2 x 11" booklet that is cumbersome but has good graphics explaining bicycle safety. Age group unspecified, probably 6th grade and up.

# Additional learning resources

BACKGROUND

LESSON

*Smart Cycling in Chicago.* Chicagoland Bicycle Federation by Dave Glowacz. 1994. A 32-page free brochure discussing basics of cycling, for 4th grade and up. *Contact:* (312) 427-3325

*Kids on Bikes in Chicago.* Chicagoland Bicycle Federation by Dave Glowacz. 1998. A 10-page booklet providing the essential basic cycling tips. Full of graphics and easy to understand. Geared for 2nd grade and up. *Contact:* (312) 427-3325

*Teacher's Guide to Bicycle Safety.* American Academy of Pediatrics. 1992-3. A booklet with pullout sheets and posters. For grades 1-3. *Contact:* AAP Publications, PO Box 927, Elk Grove Village, IL 60009.

*Washington Bicyclist's Guide.* Washington Traffic Safety Commission. 1996. A 32-page booklet that is similar in scope to Alaska's booklet. Provides information for novice and experts ages 12 and up. *Contact:* (206) 624-3845

*Easy Steps for a Perfectly Fitted Helmet.* Oregon Department of Transportation. 1999. A brochure detailing the process of correctly fitting a bicycle helmet. Includes photos that depict each step of the process for clarity. *Contact:* Rick Waring (503) 986-4196

*Bicycle Skills Course (Rodeo) Instructor's Guide.* Cascade Bicycle Club, King County Emergency Medical Services. *Contact:* Cascade Bicycle Club or BTA (503) 226-0676 (the BTA has a bike rodeo packet).

## BOOKS AND PUBLICATIONS

*Effective Cycling.* John Forester. MIT Press.

*Oregon Bicyclist Manual.* Oregon Department of Transportation. *Contact:* ODOT, Michael Ronkin, (503)

986-3555

*Oregon Driver Manual.* Oregon Department of Transportation. *Contact:* DMV or ODOT

*Training programs for Bicycle Safety.* Harborview Injury Prevention and Research Center. September 1998. *Contact:* Jane Metrik (206) 521-1570, metrikj@u.washington.edu

*Urban Biker's Tricks and Tips.* Dave Glowacz. Available at bookstores, bikeshops and BTA. *Contact:* (800) 888-4741

*Mick Harte was here.* Barbara Park. Scholastic Inc. 1995.

*Bikecentennial's Guide to Bicycle Rodeo.* A comprehensive book detailing bicycle rodeo activities. *Contact:* Outdoor Publishing, 511 Eastlake Ave. E. Seattle, Washington. 98109

*Bike Ed.* Contact the League of American Bicyclists. Bike Ed. is the manual that accompanies the League's bicycle safety education program. The program trains adults nationwide to be certified instructors and teach all or pieces of the entire curriculum. *Contact:* Sami Founder (202) 822-1333.

## VIDEOS

*First Gear.* Bicycle Transportation Alliance. New and comprehensive curriculum for ages 10 and up. *Contact:* (503) 226-0676

*The Bicycle Zone.* Transit Media Communication. *Contact:* (800) 343-5540

*Pedal Smarts.* Transit Media Communication. *Contact:* (800) 343-5540

*Ride Smart.* NHSTA Helmet video. [www.nhsta.dot.gov](http://www.nhsta.dot.gov)

## Grant resources

### BOOKS

*Oregon Foundation Datebook*, by Craig McPherson. This book gives detailed information about foundations in Oregon.

*An Information Clearinghouse for Teachers and Educators*. Environmental Education Clearinghouse. U.S. EPA, Region 10. 1200 6th Ave. So-143, Seattle, WA 98101-9797; (800) 424-4372

*Grantseeking Made Easier*. City of Portland, Bureau of Housing and Community Development

*The Guide to Oregon Foundation*, by United Way. This book outlines foundations that have a history of giving in Oregon.

*Guide to Business Giving in Oregon*. This book profiles major corporate giving programs in Oregon.

*National guide to Funding for Children, Youth and Families*, by the Foundation Center.

*Foundation 1000*, by the Foundation Center. This book lists the top 1000 foundations in the nation.

*Getting Funded: A complete guide to proposal writing*, by Mary Hall. This book goes through a step by step process of developing ideas, selecting funding sources and writing the proposal.

*Program Planning and Proposal Writing*, by The Grantsmanship Center. A guide to proposal writing with a focus on how to write the elements of a complete and competitive grant application.

Check University and public libraries (particularly Multnomah County's Central Library) for grant centers.

### INTERNET RESOURCES

The Foundation Center  
([www.fndcenter.org](http://www.fndcenter.org))

Foundations on Line  
([www.foundations.org](http://www.foundations.org))

CharityNet  
([www.charitynet.org](http://www.charitynet.org))

The Grant Doctors  
([www.thegrantdoctors.com](http://www.thegrantdoctors.com))

The Grantsmanship Center  
([www.tgci.com](http://www.tgci.com))

*(Mostly taken from Bureau of Housing and Community Development, Grantseeking Made Easier, by Leah Halstead.)*

### OREGON DEPARTMENT OF TRANSPORTATION MINI GRANTS

#### **Bicycle and Pedestrian Mini Grants:**

Annual mini grants available to a variety of organizations that are dealing with bicycle and pedestrian safety.  
*Contact Rick Waring, (503) 986-4196*

#### **ACTS Oregon Mini Grants: ACTS**

Oregon administers a mini grant program for building safe communities and for DUII programs. Generally only city agencies can apply for grants.  
*Contact Lynn Mutrie, (503) 656-7207*

#### **ODOT Region Representatives: ODOT**

has five regions and each has a safety representative that possesses a small amount of money to allocate each year to safety programs. *Contact Rick Waring, (503) 986-4196*



# Handouts and worksheets

## HANDOUTS

LESSON 1:  
BICYCLE RIDERSHIP AND SAFETY

**Release and consent form**

**Bicycle pre-test**

LESSON 2:  
HELMETS, GEAR AND BIKE PARTS

**Bicycle parts worksheet**

**Travel to school survey form**

**Bike ridership graph**

LESSON 3:  
LAWS, HAZARDS AND REPAIR

**Crashing: Very much a young person's problem**

**Bicycle riding dangers**

LESSON 4:  
TRAFFIC SIMULATION; FITTING BIKES

**Overhead: Right-of-way rules**

**Worksheet: Who has the right-of-way?**

**Right-of-way overhead: Intersection vehicles**

**Overhead: Intersection**

**Traffic Signs**

**Bicycle maintenance checksheet**

LESSON 9:  
NEIGHBORHOOD BIKE RIDE / BIKE RODEO

**Bicycle post-test (see *Lesson 1*)**

**Answer Keys**

**Teacher Evaluation**

### OVERVIEW

This section contains handouts correlated to individual lesson activities and discussions for the educator to copy and distribute to students. Information includes:

- Release and consent form
- Worksheets for students to complete and turn in
- Answer keys
- Informational handouts
- Evaluations

### STATEWIDE EDUCATION GOALS

# Safe Routes for Kids Bicycle Safety Program

## Release and Consent Form

Dear Parents/Guardian:

Your child has been given the opportunity to participate in the Bicycle Safety Program. The Program is a comprehensive curriculum offered by the Bicycle Transportation Alliance (BTA) that will teach traffic savvy through classroom activities and on-the-bike skills practice. Students will learn skills such as helmet use, hand signals, traffic signs, maneuvering through intersections and out of driveways. The bicycle training will be run on the school grounds and surrounding community streets.

All participants must have this consent and release form signed by a parent or legal guardian. The following conditions apply:

1. All participants will be taking part in physical activity, mainly cycling. Individuals in average health will be able to comfortably participate; it shall be each individual's responsibility to be sure they are in a healthy condition.
2. Bicycle riding will occur both on the school grounds and on-streets, therefore, all activities are potentially dangerous. Participants must adhere to the rules set out in class in order to assume responsibility for their risk.
3. Neither the \_\_\_\_\_ Schools nor the BTA will assume legal liability for any program participants. Participants must possess their own.
4. If my child is taking the course using his/her own bicycle and/or helmet I agree to inspect the bicycle and/or helmet prior to the course to ensure these items are safe for my child's use. I understand that the BTA cannot inspect the bicycle or helmet for safety and that I must do so. I specifically understand that bicycle helmets are considered unsafe if they have been worn in any crash, no matter how slight, or dropped from a height of more than three feet onto any hard surface or are over 5 years old. I understand that this is the case even if the helmet shows no visible signs of damage.

I \_\_\_\_\_, the undersigned, give my consent for \_\_\_\_\_ to participate in the Bicycle Safety Program. I hereby release the facilitators, \_\_\_\_\_ Schools, its employees and volunteers, the BTA, the State of Oregon, and any program participants from any and all liability with relationship to participation to the Bicycle Safety Program.

---

Parent / Legal guardian signature

Date

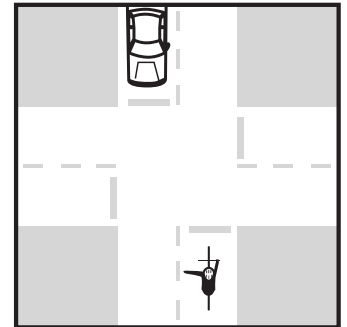


# Bicycle test

NAME \_\_\_\_\_

This test will help us know how well you understand the rules of the road as they apply to bicycles. Read all questions carefully. Questions will ask you to either label pictures, choose the best answer to a question, or list answers. You will receive extra credit where you are able to list more than the requested number of answers.

1. You and the car across from you reach this four-way stop intersection at the same time. You are turning left and the car is going straight. Mark the **one** answer that best explains what you will do.



- A. Stop, signal left, wait for the car to go first and then turn left
- B. Stop, turn through the intersection and then let the car go straight
- C. Make eye contact with the driver and make your turn

2. You are riding at night in a properly lighted neighborhood. Mark the **one** answer that best explains what the law requires for night riding.

- A. Bright clothes and reflectors
- B. Flash light and reflectors
- C. Front head light and rear tail light
- D. Reflective clothing and front head light

3. Write a brief description of what the following signs mean and label all parts of the traffic signal.



A. \_\_\_\_\_  
\_\_\_\_\_



B. \_\_\_\_\_  
\_\_\_\_\_



C. \_\_\_\_\_  
\_\_\_\_\_



D.  
Color:  
Action:  
  
Color:  
Action:  
  
Color:  
Action:

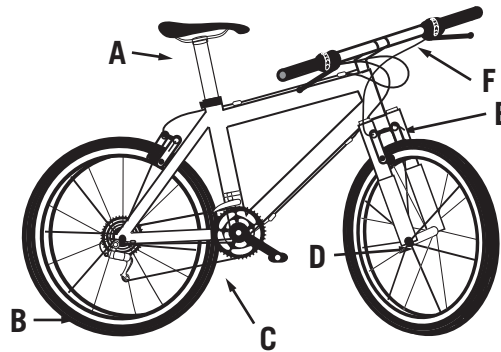
4. You are riding on the street and a stoplight that is 25 feet away turns yellow. Mark the **one** answer that best explains what you should do.

- A. Keep your current speed and if you see that the intersection is clear, go through it
- B. Slow down and stop at the light
- C. Continue going fast and stop wherever the light turns red
- D. Go faster and try to make it through the intersection

# Bicycle test page 2

5. It is important to test if your bike is safe before each ride. Match the six things in the column to the left with the bike diagram on the right.

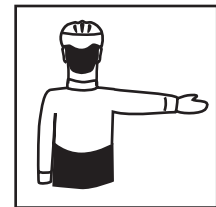
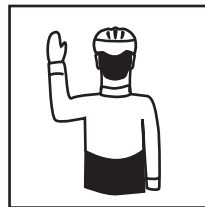
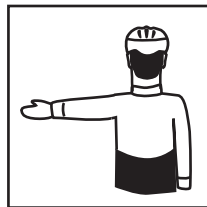
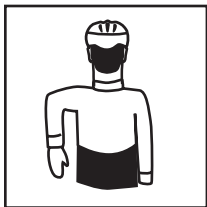
- \_\_\_ Quick release
- \_\_\_ Chain
- \_\_\_ Handlebars
- \_\_\_ Brakes
- \_\_\_ Seat
- \_\_\_ Tires



6. Mark the **three** most common situations when bicycle collisions occur.

- A. Bicyclist is riding in the opposite direction to the proper flow of traffic
- B. Bicyclist is riding in the same direction to the proper flow of traffic
- C. Bicyclist coming out from a driveway or sidewalk onto the street
- D. Bicyclist does not obey the proper rules of the road
- E. Bicyclist stays to the right side of the roadway
- F. Bicyclist rides through a green light

7. Label the hand signals with their proper meaning.



A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

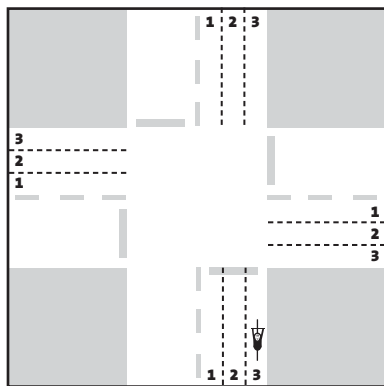
D. \_\_\_\_\_

8. Mark the **five** most important actions or rules of the road that all bicyclists must follow for safe riding.

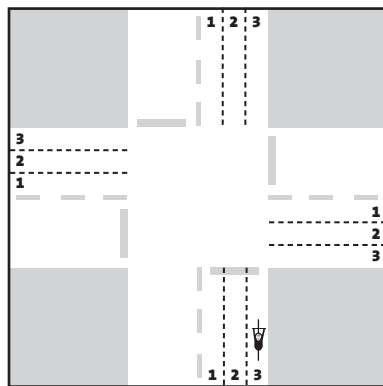
- A. Obey traffic laws and signs
- B. Always use hand signals
- C. Always ride on the sidewalk
- D. Wear a properly fitted helmet
- E. Check your bike for safety
- F. Ride on the left side of the street against traffic
- G. Use lights and bright clothing when riding at night
- H. Always let cars go before you at intersections

# Bicycle test page 3

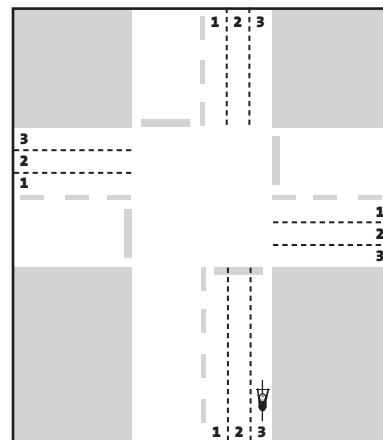
9. The intersection below is labeled with positions 1, 2, and 3 to help remind cyclists where to ride when biking through an intersection. Starting at the bicycle, draw your path through the intersection for:



Right turn



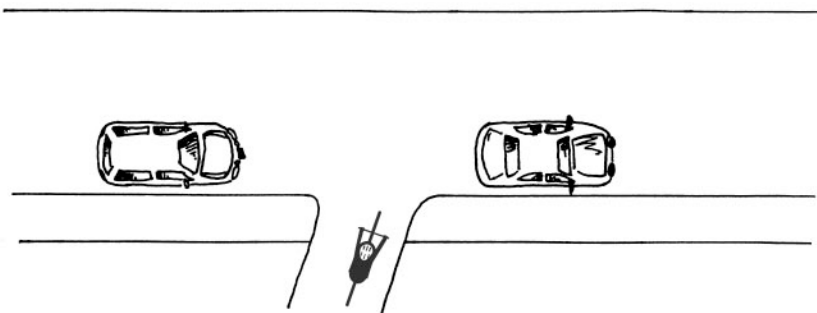
Going straight



Left turn

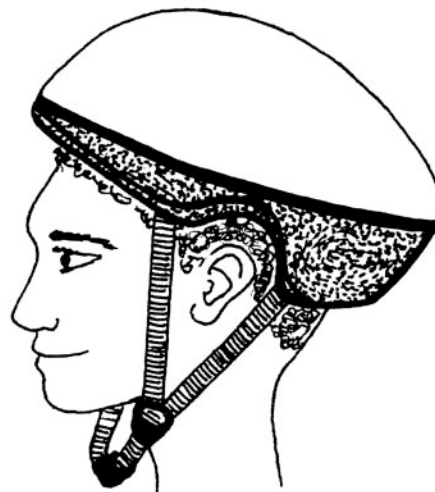
10. Mark the **three** most important actions to safely exit the driveway below.

- A. Use your brakes without skidding
- B. Stop at the end of the driveway
- C. Look both ways before riding on to the street
- D. Watch out for pedestrians on the sidewalk
- E. Ride fast onto the street



11. Describe three actions that would make this a better-fitting helmet. Use words and arrows.

- A. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- B. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- C. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Bicycle parts worksheet

LESSON 2

HELMETS, GEAR AND BIKE PARTS

Place a line pointing to a part of the bike listed below. Letter the line with the correct bicycle part.

## Frame

- A** top tube
- B** down tube
- C** head tube
- D** seat tube
- E** front fork
- F** seat stays
- G** chain stays
- H** wheel dropouts

## Drive Train

- I** pedal
- J** cranks
- K** chainwheel
- L** chain
- M** rear derailleur
- N** freewheel/cassette

## Other Components

- O** tire
- P** spokes
- Q** rim
- R** seat
- S** seat post
- T** handle bars
- U** brake cables
- V** brake levers
- W** shift levers



NAME \_\_\_\_\_

# Travel to school survey form

Your class can have a lot of fun going around to other classes and asking them these questions. When you go to another class, ask the students to raise their hands if they would answer yes to the question. Take turns reading the questions, have one person count the hands up and one person writing the numbers in the blank space.

How many students are in the class? \_\_\_\_\_

	YES	NO
Do you own a working bike that you can ride?		
Did you ride your, or someone else's bike this summer?		
Have you ever crashed a bike?		
Did you ride your bike to school this year?		
Did you ride your bike today?		
Did you walk to school today?		
Did you take the bus today?		
Were you driven in by car today?		
If you came to school some other way, raise your hand, how?		
If you didn't ride your bike, would ride to school if you could?		
Would you like to ride bikes as an after school activity?		

WHAT TEACHER'S CLASS IS THIS? \_\_\_\_\_

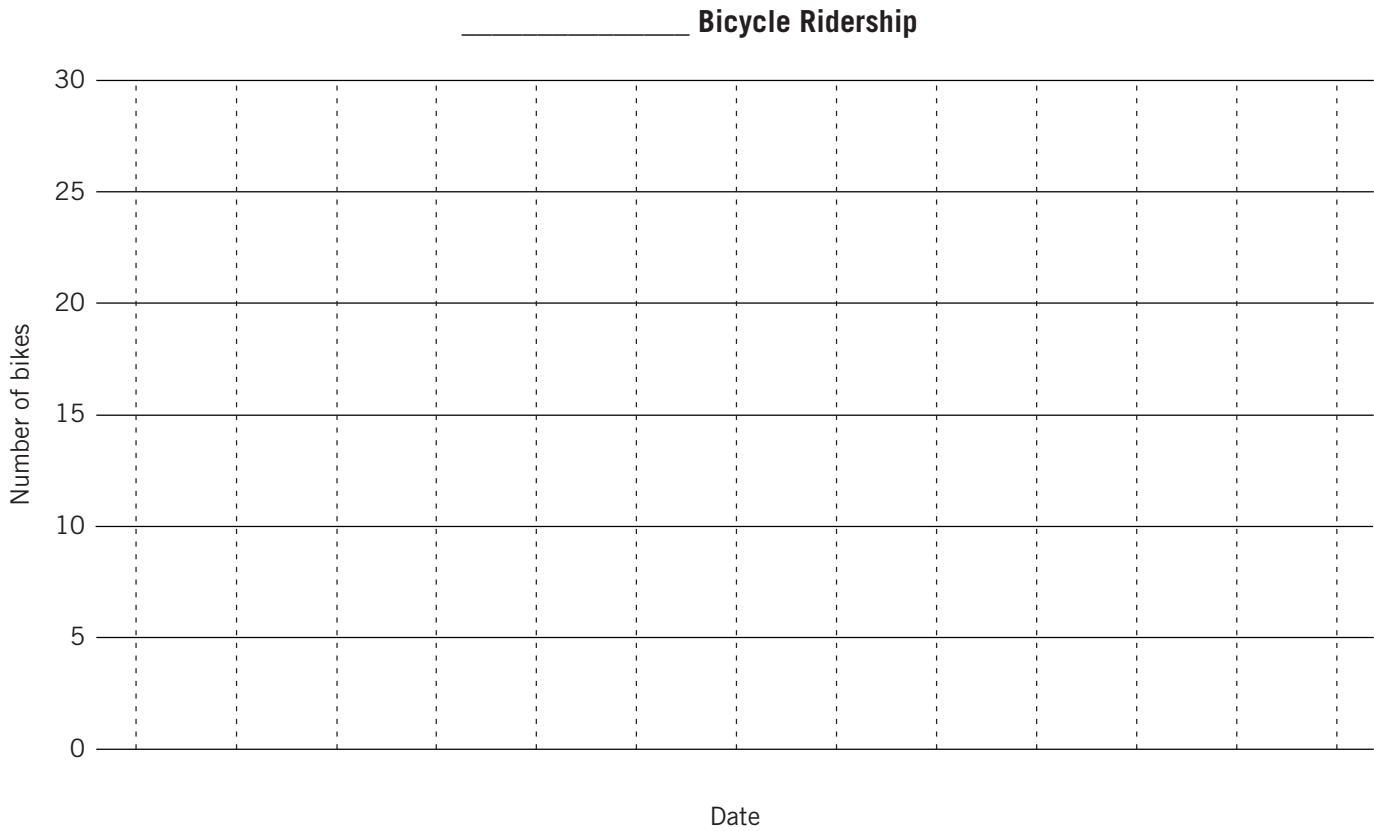
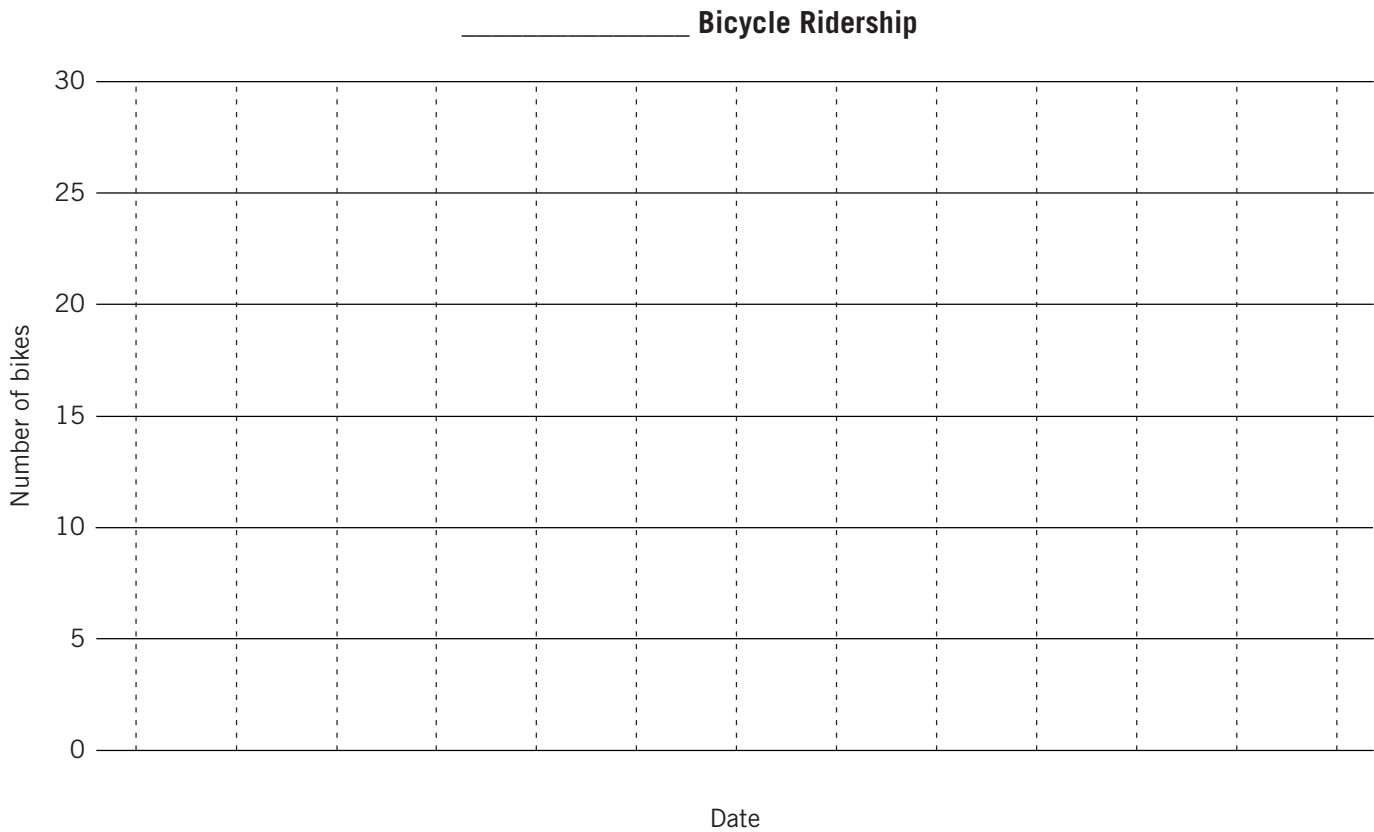
GRADE \_\_\_\_\_ TODAY'S DATE \_\_\_\_\_

WEATHER (circle ones that describe today)

SUNNY      RAINY      COLD      WARM      HOT      OTHER \_\_\_\_\_

WHEN YOU ARE DONE, RETURN THIS TO YOUR TEACHER. YES NOW!

# Bike ridership graph



# Crashing: very much a young person's problem

*“Younger children and teenagers largely cause their own car-bike collisions...”*

*“The statistics of all car-bike collisions are heavily influenced by the enormous proportion that occur to children 12 to 15 years of age, the age group in which American cycling is most concentrated and the cycling age group first exposed to heavy traffic. About one-third of car-bike collisions occur to cyclists under 12 years of age, another one third in the 3 years from 12-15, and the last third to cyclists over 16 years of age.”*

JOHN FORESTER, EFFECTIVE CYCLING

## Major causes of car-bike collisions (table 28.6. Forester, page 164)

Note below that all of the top causes for youth bicycle-car crashes are the bicyclists fault, it is almost the opposite with adults and experienced riders who are less often at fault.

### Child – urban

- Cyclist running stop sign
- Cyclist exiting residential driveway
- Cyclist riding on sidewalk turning to exit driveway
- Cyclist riding on sidewalk hit by motorist exiting commercial driveway

### Child – rural

- Cyclist exiting residential driveway
- Cyclist swerving about on road
- Cyclist swerving left
- Cyclist entering road from sidewalk or shoulder

### Teen – urban

- Wrong-way cyclist hit by motorist restarting from stop sign
- Cyclist turning left from curb lane
- Cyclist exiting commercial driveway
- Wrong-way cyclist running stop sign
- Wrong-way cyclist head on

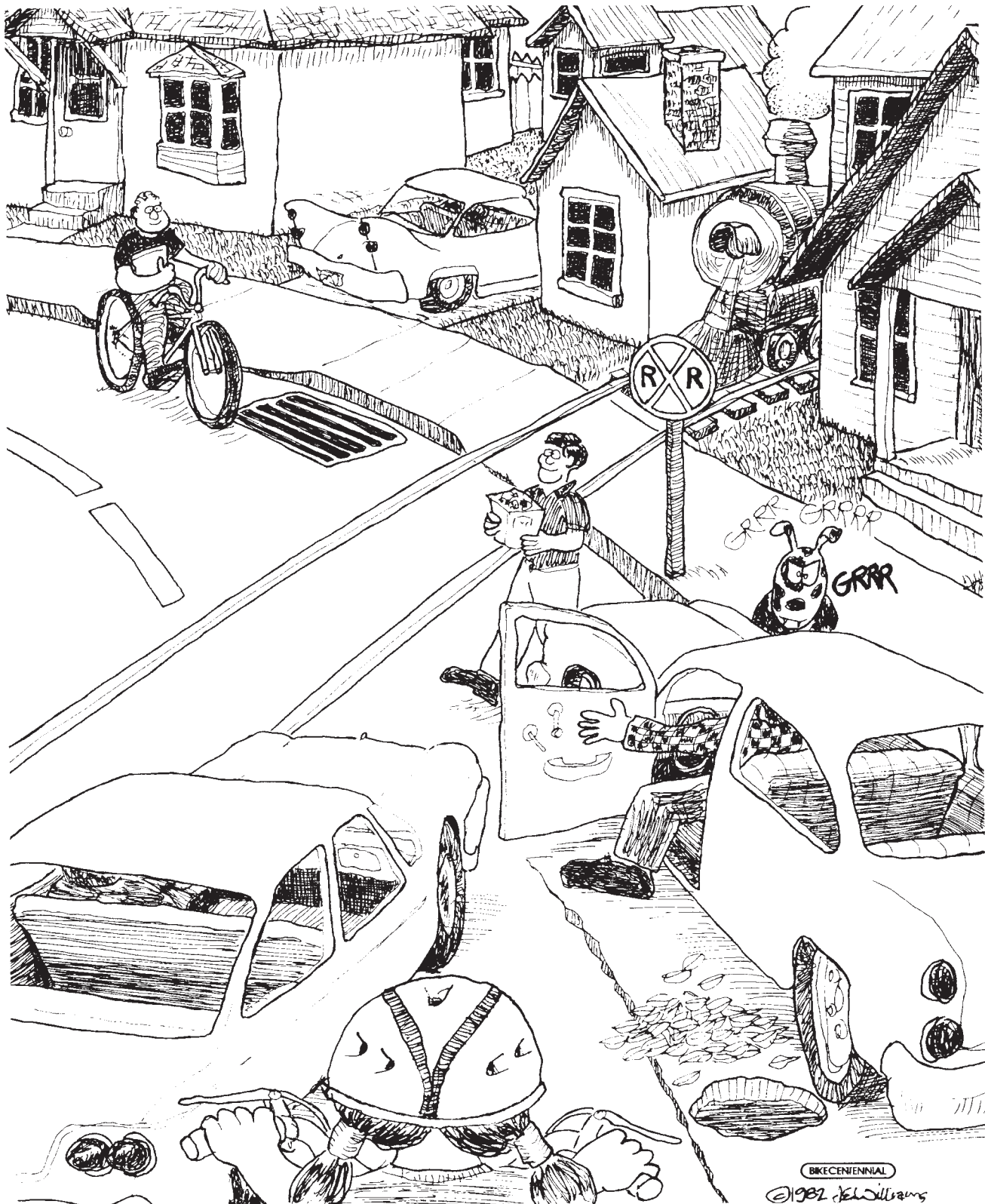
### Teen – rural

- Cyclist turning left
- Wrong-way cyclist head on
- Wrong-way cyclist hit by motorist restarting from stop sign
- Cyclist turning left from curb lane, hitting car coming from opposite direction

Source: Effective Cycling. John Forester. MIT Press.

# Bike riding dangers

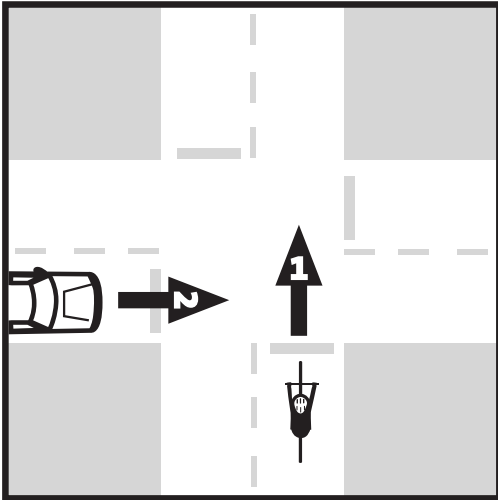
This picture shows 13 bike riding dangers. Can you find them all?



Pretend you are the person riding the bicycle at the bottom of the picture. Can you see all the things that could cause you to have an accident? There are 13 hazards in this drawing. See if you can find them all!

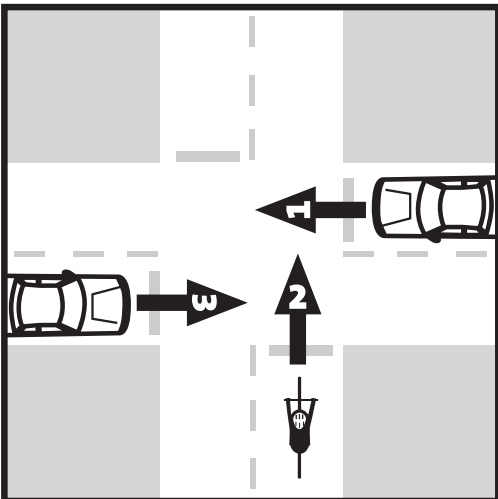


# Overhead: Right-of-way rules



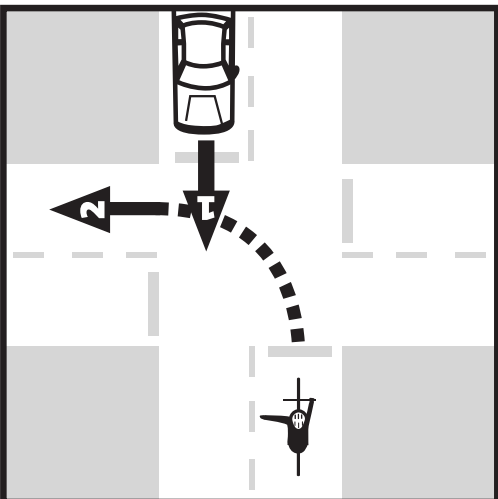
*First to stop.*

The first person at the intersection goes through the intersection first.



*Right goes first.*

When two cars get to the intersection at the same time, the person on the right goes first, they have the RIGHT OF WAY.



*Straight goes first.*

When two people are directly across from each other, and one is going straight and the other is turning left, the one that is going straight goes first.

# Bicycle maintenance checksheet

LESSON 4

TRAFFIC SIMULATION; FITTING BIKES

PART	QUESTIONS TO ASK	YES	NO
<b>WHEELS</b>	Do the wheels spin without touching the brakes?		
	Are they centered and secure in the frame?		
	When you spin your wheel, is the rim of the wheel round?		
<b>TIRES</b>	Are the tires free of bulges, cuts, worn spots?		
	Are the tires firm?		
	Is the tread good?		
<b>BRAKES</b>	Do the brakes have at least one finger's-width between the lever and handlebar when engaged?		
	Do coaster brakes effectively stop the rear wheel?		
	Do the brakes stop the wheels from turning?		
<b>SPOKES</b>	Are all the spokes in place?		
<b>CHAIN</b>	Is the chain complete, in good working order?		
	Is the chain clean and lubricated?		
	Does the chain have the proper tension? It should fit snugly, with no more than one half inch play.		
<b>PEDALS</b>	Are the pedals secure? Try to shake them back and forth.		
<b>SADDLE</b>	Is the seat secure? Can you move it by banging on it?		
<b>QUICK RELEASES</b>	Are the front and rear quick releases tight and in the closed position?		

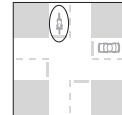
# Worksheet: Who has the right-of-way?

## BACKGROUND:

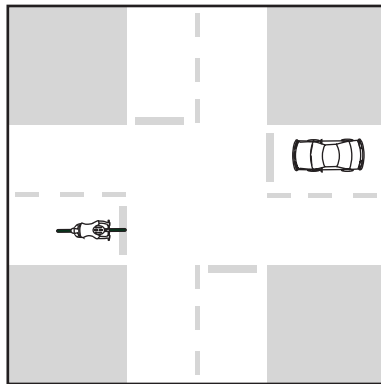
This worksheet is designed to test your knowledge of right-of-way rules. Each question has a different situation and the types of intersections and actions of the vehicles may vary. For example, some intersections have 2 stop signs and others have 4; some vehicles are going straight and others are turning. Use the vehicle and intersection models to help you decide which vehicle has the right-of-way.

## DIRECTIONS:

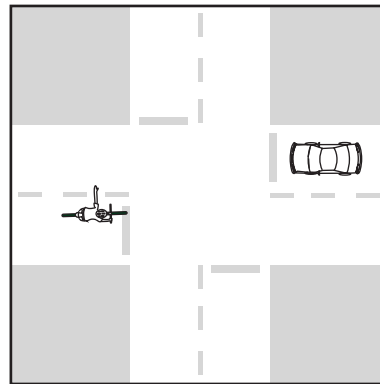
**Label** each intersection either 2-way or 4-way stop (pay attention to the stop lines). **Circle** the vehicle that has the right-of-way (the vehicle that gets to go first). See example.



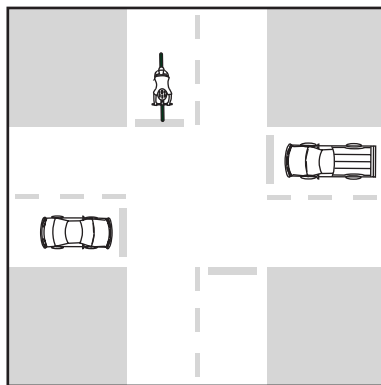
1. \_\_\_\_\_



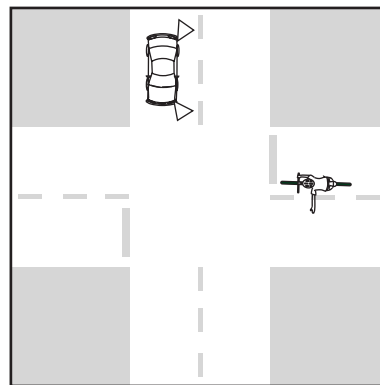
2. \_\_\_\_\_



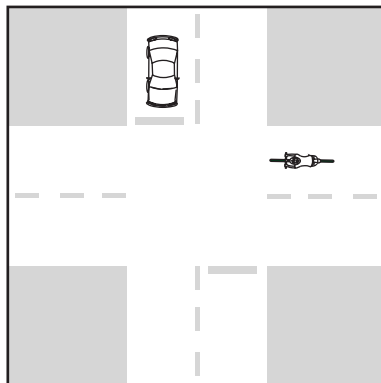
3. \_\_\_\_\_



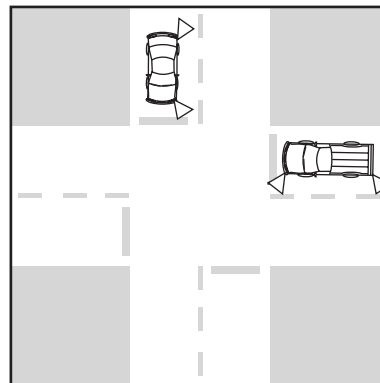
4. \_\_\_\_\_



5. \_\_\_\_\_

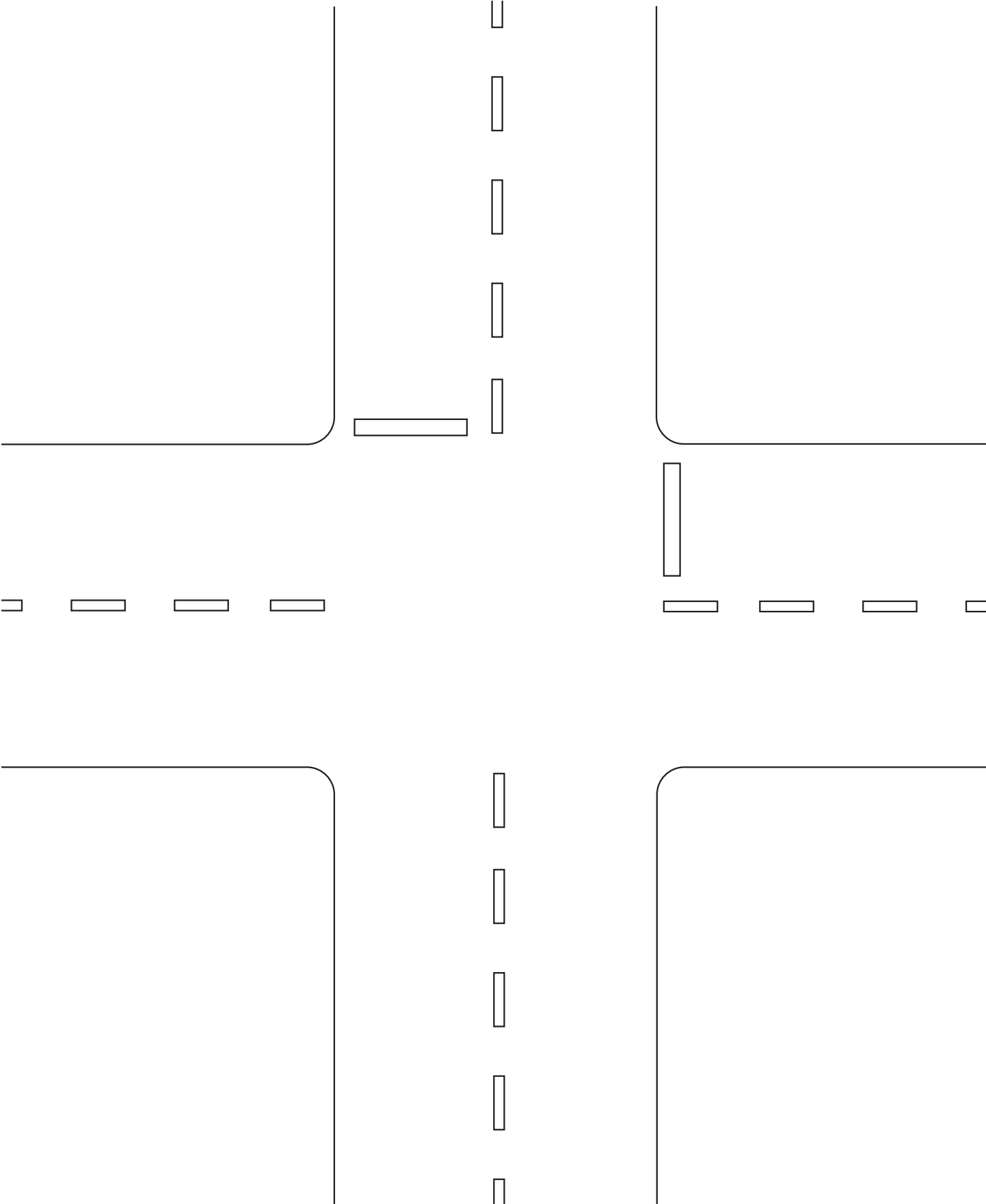


6. \_\_\_\_\_





# Overhead: Intersection



# Traffic signs



# Traffic signs



# Traffic signs



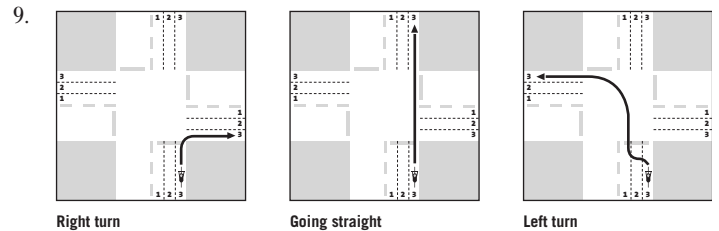


# Answer keys

## BICYCLE TEST ANSWER KEY

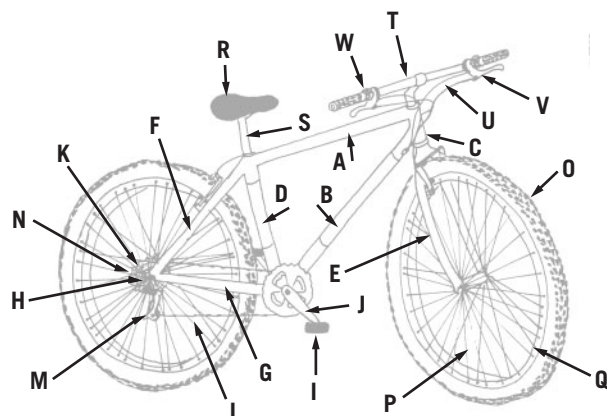
1. A. Stop, wait for the car to go first, signal left and then turn left
2. C. Front head light and rear tail light
3. A. Railroad crossing ahead  
B. Stop at the end of the street  
C. Watch for other vehicles *or*  
Be cautious and stop if other vehicles are approaching the intersection  
D. Red – Stop; Yellow – Stop; Green – Go
4. B. Slow down and stop at the light
5. D Quick release  
C Chain  
F Handlebars  
E Brakes  
A Seat  
B Tires
6. A. Bicyclist is riding in the opposite direction to the proper flow of traffic  
C. Bicyclist coming out from a driveway or sidewalk onto the street  
D. Bicyclist does not obey the proper rules of the road

7. A. Stop/stopping  
B. Left  
C. Right  
D. Right
8. A. Obey traffic laws and signs  
B. Always use hand signals  
D. Wear a properly fitted helmet  
E. Check your bike for safety  
G. Use lights and bright clothing when riding at night

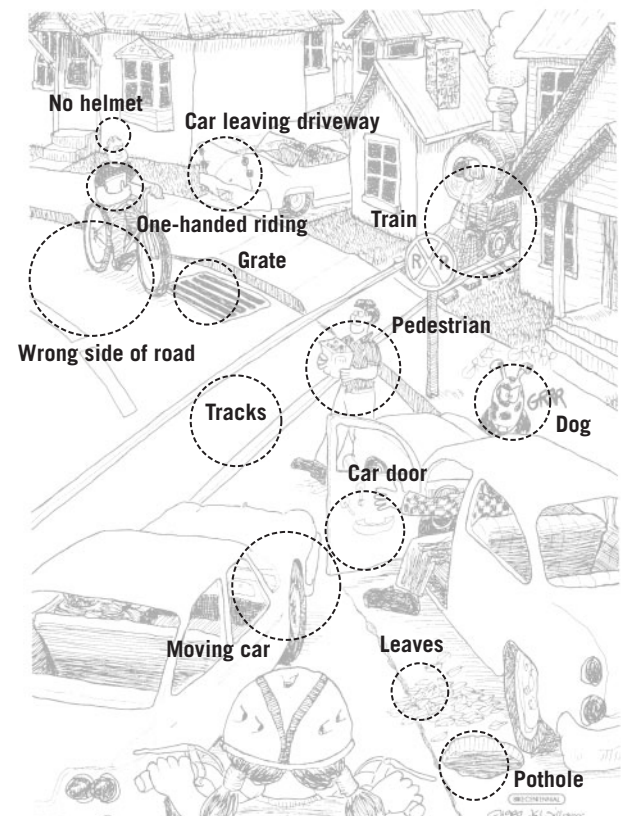


10. B. Stop at the end of the driveway  
C. Look both ways before riding on to the street  
D. Watch out for pedestrians on the sidewalk
11. Helmet needs to be level across forehead, tighten chin strap, move slider up

## BICYCLE PARTS ANSWER KEY



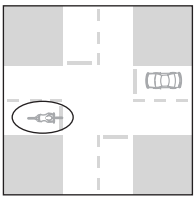
## BIKE RIDING DANGERS ANSWER KEY



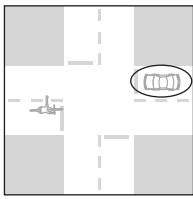
# Answer keys

## RIGHT OF WAY ANSWER KEY

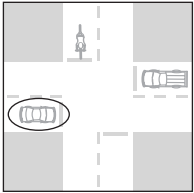
1. 4-way



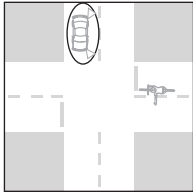
2. 4-way



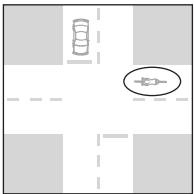
3. 4-way



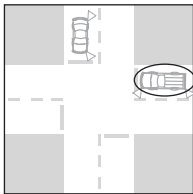
4. 2-way



5. 2-way



6. 4-way



Additional class discussion questions for each intersection or add your own:

- Q: What would happen if the car and bicycle arrived at the intersection at the same time?

A: Both vehicles would stop, look for traffic and continue through intersection at the same time.
- Q: What would happen if the car was also taking a left turn? Can both vehicles go at the same time?

A: Both vehicles could go at the same time after stopping and checking for traffic.
- Q: What would happen if the vehicle at the 9:00 position were turning left instead of going straight?

A: The vehicle turning left has the right-of-way because it is still the vehicle that is the furthest "right" of the other vehicles. Next the vehicle in the 12:00 position would go, followed by the vehicle in the 3:00 position.
- Q: What would happen if an additional car heading straight (from the 6:00 position), opposite the car turning left, was included?

A: The car coming straight would go first, then the turning car would turn left, finally the bicycle would turn left.
- Q: Who would have the right-of-way if this was a 4-way instead of a 2-way intersection?

A: The car would have the right-of-way because it is on the "right" of the bike.
- Q: Who would have the right-of-way if both vehicles arrived at the intersection at the same time?

A: The car because it is on the "right" of the pick-up.

# Teacher evaluation of Safe Routes for Kids Bicycle Safety Program

Feel free to attach additional sheets of paper to include more detailed answers. If it applies, please write the corresponding number to the question you might be answering.

School Name \_\_\_\_\_ City \_\_\_\_\_  
 Teacher Name \_\_\_\_\_ Dates of Program \_\_\_\_\_  
 BTA staff who taught in your school \_\_\_\_\_  
 Grades which participated in Bicycle Safety Program \_\_\_\_\_

- How do you rate the curriculum that was most recently run in your school?
 

1	2	3	4	5	6	7
Very Poor		Average			Outstanding	
- Did you feel that the program content was age appropriate?
 

1	2	3	4	5	6	7
Not Appropriate		Average		Very Appropriate		
- What do you think would be the ideal grade level for this material? \_\_\_\_\_
- Did you feel that the program content was valuable to the students?
 

1	2	3	4	5	6	7
Not Valuable		Average		Very Valuable		
- What level of knowledge do you think the students had of bicycle safety / traffic safety concepts *prior* to this training?
 

1	2	3	4	5	6	7
No Knowledge		Average		Full Knowledge		
- What level of knowledge do you think the students had of bicycle safety / traffic safety concepts *after* the training?
 

1	2	3	4	5	6	7
No Knowledge		Average		Full Knowledge		
- Do you think that the information will be applicable in the students' daily lives?
 

1	2	3	4	5	6	7
Not Applicable		Average		Very Applicable		
- Do you think that this program will help children be safer automobile drivers in the future?
 

1	2	3	4	5	6	7
Not At All		Average		Much Safer		
- What particular strengths do you feel the curriculum had? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Teacher evaluation of Safe Routes for Kids Bicycle Safety Program (continued)

10. Weaknesses of the curriculum? \_\_\_\_\_

---

---

---

11. If a BTA instructor assisted, please evaluate their strengths. \_\_\_\_\_

---

---

---

12. The BTA instructor's traits to be improved upon? \_\_\_\_\_

---

---

---

13. Do you think that this program added value to the community? \_\_\_\_\_

---

---

---

14. How did you feel about the level of supervision on the rides? \_\_\_\_\_

---

---

---

15. Do you think that the students benefited from having adult volunteers in the school? \_\_\_\_\_

---

---

16. Would you like to receive this program again? \_\_\_\_\_ When? \_\_\_\_\_

---

---

17. Could you envision leading any of these aspects of the program on your own?

- Some in-class lessons     All in-class lessons  
 Some on-bike lessons     All on-bike lessons  
 On-street bike rides

# Index

## Bicycle

- Fitting* 40, 46, 115
- Locking* 43
- Safety check* 41-42, 99

## Bike exercises

- Driveways* 29, 58, 60, 78, 99
- Exiting a driveway* 58
- Follow the leader* 52
- Gearing* 51
- Going straight* 9, 36-8, 99
- Predictability* 7-8, 57
- Riding on the right* 8-11, 28, 57-58
- Riding with one hand* 48-49
- Signaling* 28, 38, 49, 59
- Slalom* 47-48, 83
- Snail race* 50, 83
- Starting* 47, 49, 61
- Stopping* 38, 47-48, 67, 74

## Bike Gear 14, 16, 18, 20-22, 90

- Commuting* 21, 90
- Riding at night* 21, 30, 72, 90
- Riding in the rain* 21, 30, 72, 90

## Bike rodeo 79, 83, 96

## Crashes i, iii, iv, 5-8, 13, 15-17, 29-30, 38, 47, 57, 99

## Curriculum

- Background* iv
- Overview* ii
- Lesson plans* xi - xvi
- Resources* (See resources)

## Driving iv, 2, 6, 7, 29

## Educational goals ii, viii-x

## Flat tire repair 31

## Hazards 28-30, 34, 49, 72-76, 78, 82, 99

- Collisions* 29, 76, 99
- Emergency stop* 74
- Identification* 30, 72
- Quick turn* 76
- Railroad tracks* 73
- Rock dodge* 75

## Helmets 14-18, 20, 22, 46, 56, 83, 90, 94

- Importance of the brain* 14-15
- Melon drop* 16

## Intersections 8-11, 28-29, 36-38, 44, 58-61, 63-70, 77-78, 81-83, 99

## Laws ii, 5-8, 28-29, 36, 39, 78, 82, 99

## Left turns 67-68, 70, 78, 82

## Looking back 6, 48-48, 59, 70

## Neighborhood ride 77-78, 81-82, 87-88

## Physically fit lifestyle viii, 80

## Resources vi, vii, 89-98

- Administration* vii, 23
- Equipment* vi, vii, 91, 94, 99
- Organizations* vi, vii, 92-93, 95-96

## Ridership ii, 3, 22-26, 34, 44, 53, 99

- Measuring* 22-26, 99
- Promoting* iv, 3, 23, 80, 92

## Right turns 9-10, 28, 38-39, 59-61, 65-66, 68-69, 78, 82

## Rules of the Road 8-11, 28, 38-39, 99

## Surveys 24-25, 99

## Testing 4, 86, 99

## Traffic signs 8, 19, 57, 64, 99

## Traffic simulation 38-39, 99

## Video 5, 33, 96

## Worksheets 99



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