

BIKESMART - ON-BIKE!

Critical Content, Concepts and Skills for Safe Bicycle Riding



Developed by
Center for Health & Learning

With funding from
the Vermont Agency of Transportation



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ACKNOWLEDGEMENTS

This publication was developed by the Center for Health and Learning, and made possible through funding from the Vermont Agency of Transportation Safe Route to School program using federal transportation funds.

Our thanks go to Jon Kaplan, Bicycle and Pedestrian Program Manager at the Vermont Agency of Transportation, for supporting this work and to Lindsay Simpson, Physical Education Consultant, and Donna McAllister, Health Education Consultant, at the Vermont Department of Education for their contributions. Long-time bicycle safety educator Bill Merrylees, a member of the Safe Routes to School statewide task force and former Montpelier Safe Routes to School Coordinator, also gave input. Thanks also to Alice Charkes and the Brattleboro Green Street School's bike train for providing the cover photos.

Many resources developed by colleagues around the country were used in the development of this curriculum. These include:

Maryland Pedestrian and Bicycle Safety Education Program
Bicycle Transportation Alliance - Bicycle Safety Education Program
Bicycle Coalition of Maine – Bicycle Safety Education Program
League of American Bicyclists – BikeEd Kids II Curriculum
Teaching at a Bicycle Safety Fair – Vermont Safe Kids / Vermont Bicycle & Pedestrian Coalition
Guide to Bicycle Rodeos, John Williams and Dan Burden, Adventure Cycling Association, 1994.
Teaching Safe Bicycling Program (Wisconsin Department of Transportation)
Effective Cycling, John Forester, MIT Press, 1993.

Distribution Information

Copies of this curriculum are available in pdf format on the Center for Health and Learning website: www.healthandlearning.org <Pedestrian and Bicycle Safety Resources> Print copies are available from the Center for Health and Learning for a fee which covers the costs of production and distribution.

Training is available on this curriculum. For more information, contact the Center for Health and Learning.

To request a print copy of the curriculum or to schedule a training, please contact the Center for Health and Learning: info@healthandlearning.org or (802) 254-6590.

Publication Date: 2008 by the Center for Health and Learning
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BIKESMART ON-BIKE

Introduction

The *BikeSmart On-Bike* curriculum is designed as a series of six 30- to 40-minute lessons for Grades 4-8 Physical Education (P.E.) classes. Of these 6 lessons, 4 lessons comprise the core of the curriculum, and 2 lessons are optional. *BikeSmart On-Bike* is recommended to be taught to Grades 4 or 5, and again with more advanced concepts in Grades 6, 7 or 8.

These lessons presume that students already know how to balance a two-wheeled bicycle. Most students will know how to do this by Grade 1 or 2. Students with physical or mental limitations may need accommodations. Physical educators should review each student's individualized education program (IEP) and, in consultation with a special educator, adapt the curriculum to meet learning needs.

Background for Bicycle Safety

Teaching safe bicycling skills is one important way to support Vermont students in bicycling to school. In Vermont's rural communities, bicycling is one significant way that children can "extend their range" beyond walking – whether it is to school, to a friend's house, or for other social or recreational activities. *BikeSmart On-Bike* has been developed with funding through the Vermont Safe Routes to School Program.

The *BikeSmart On-Bike* curriculum is designed to teach students the skills they need to avoid typical childhood crash types. There is sometimes a misperception that most bicycle crashes involve motor vehicles. However, for bicyclists of all ages, the most frequent crash type is a simple fall – in which the bicyclist loses control of the bicycle. The bicyclist may encounter an obstacle in the roadway, have problems braking, lose control due to riding too fast, or simply lose his or her balance. Younger children are more likely to fall, as they have less experience judging road hazards, partially developed motor skills, and a less developed sense of balance. Falls can cause scraped knees, but they can also cause serious injury or death, particularly for bicyclists not wearing a helmet.

Since up to 90% of fatal bicycle crashes are the result of head trauma, *BikeSmart Vermont!* stresses the importance of always wearing a properly fitted helmet. *BikeSmart On-Bike* reinforces helmet wear, and both students and instructor will wear a helmet throughout the lesson series.

BikeSmart On-Bike also teaches bicycle handling skills to avoid falls. Some crashes do involve motor vehicles; *BikeSmart On-Bike* teaches bicycle traffic safety skills, designed to address typical crash causes.

Many people have the mistaken impression that bicyclists are most at risk of being hit by a car from behind. Yet, nearly 90% of crashes occur in front of the bicyclist, due to turning movements, mostly at intersections. Motorists may not see a bicyclist who has the right of way, or a bicyclist may ride through a light or stop sign.

Children who are hit by a motor vehicle from behind are likely to have caused the crash by swerving into the car's path without looking. This underscores the importance of practicing riding in a straight line, and looking over the shoulder before turning left. Tables 1, 2 and 3 provide additional detail about typical crash types.

Table 1: Typical Car-Bike Crashes by Age Group

Median age	Major causes of car-bike crashes
Under 12	Entering the roadway; swerving about
12-14	Right-of-way errors; wrong-way riding
Over 14	Signal changes; motorist drive-out; motorists turns; motorist overtaking

Crash information from *Effective Cycling*, John Forester, MIT Press, 1993. p. 268.

Table 2: Frequent Child Errors/Ages Most Likely for Them to Occur

Error	Occurrence	BikeSmart On-Bike
Driveway ride-out: not stopping and/or not looking for traffic at end of driveway or edge of curb before entering street	Up to 30% of child crashes. Most frequently, ages 5-9.	Marking end of driveway and setting rules help children avoid this error. Parental Rules: Small children do not cross the mark at end of drive, bigger kids walk bike to end of drive, stop first before looking and then, when no traffic is passing and with pedal in "power position," leave driveway and enter travel area of street or road.
Stop sign ride-out: not stopping, or stopping and not really looking before riding into intersection	Up to 30% of child crashes. Most frequently, ages 10-14.	Children this age want to know the rules of the road and why they are important. They may not yet understand who is supposed to yield, but they do understand "stop" means "stop". The intersection drills in Lesson #3 are oriented toward this crash-type.
Sudden swerve in front of motor vehicle: child wants to go to left side of street, or turn left but fails to look behind for other vehicles.	Up to 30% of child crashes. Most frequently, ages 10-14.	This skill is taught in Lesson #2, in the section called "Look back, lifesaver." The action of looking back before turning left can literally be a life saver.
Wrong way riding	Nearly 1/3 of all crashes, (child and adult involve a bicyclist going against traffic!	Emphasize the importance of riding with traffic throughout the lessons.

Crash data based on statewide data from Wisconsin, summarized by the Wisconsin Department of Transportation.

Crashes are also different in urban vs. rural settings. If you are teaching in a more urban or rural setting, you may want to use the chart below to emphasize the *BikeSmart On-Bike* lessons that address the most relevant crash types for your environment.

Table 3: Car-Bike Crashes in Urban and Rural Settings, by Age Group

	Urban	Rural
Child	<ol style="list-style-type: none"> 1. Bicyclist running stop sign 2. Bicyclist exiting a residential driveway 3. Bicyclist riding on sidewalk turning to exit driveway. 4. Bicyclist riding on sidewalk hit by motorist entering commercial driveway 5. Wrong-way bicyclist swerving left 	<ol style="list-style-type: none"> 1. Bicyclist exiting residential driveway 2. Bicyclist swerving on the road 3. Bicyclist swerving left 4. Bicyclist entering road from sidewalk/shoulder 5. Bicyclist running stop sign

(continued)

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	Urban	Rural
Teen	<ol style="list-style-type: none">1. Wrong-way bicyclist hit by motorist restarting from stop sign2. Bicyclist turning left from curb lane3. Bicyclist exiting commercial driveway4. Wrong-way bicyclist running stop sign5. Wrong-way bicyclist head on	<ol style="list-style-type: none">1. Bicyclist turns left from curb lane2. Wrong-way bicyclist head on3. Wrong way bicyclist hit by motorist restarting from stop sign4. Bicyclist turning left from curb lane, hitting car from opposite direction5. Right-of-way error at uncontrolled intersection
Adult	<ol style="list-style-type: none">1. Motorist turning left2. Signal light change3. Motorist turning right4. Motorist restarting from stop sign5. Motorist exiting commercial driveway	<ol style="list-style-type: none">1. Motorist overtaking unseen bicyclist (mostly in darkness)2. Motorist overtaking too closely3. Motorist turning left4. Motorist restarting from stop sign5. Bicyclist swerving around obstruction

Crash information adapted from *Effective Cycling*, John Forester, MIT Press, 1993. p. 269. Forester lists additional causes; this chart only includes the top five in each category.

Integration with *BikeSmart Vermont!*

BikeSmart Vermont! (Center for Health and Learning, 2008) is a classroom-based lesson for grades 2-6 that teaches critical concepts and skills for bicycle safety in Vermont. *BikeSmart On-Bike* lessons extend this classroom knowledge through practical application. While you may conduct the *BikeSmart On-Bike* lessons independently of the *BikeSmart Vermont!* instruction, the classroom education helps prepare students for the on-bike traffic safety and bicycle handling lessons. The recommended sequence is integrated into the timeline below.

HOMEWORK: From the *BikeSmart Vermont!* classroom lesson, students should be assigned the following homework to make the first lesson of *BikeSmart On-Bike* run smoothly:

- Bring a properly-fitted helmet to class. Do the “Eyes Ears Mouth Test” at home with your helmet, and bring it to school for P.E. class.
- Wear clothes appropriate for bicycling to school for the *BikeSmart On-Bike* modules: Light, bright and tight.
- If you are bringing your bicycle to school, check that it passes the *ABC Bike Quick Check* this week, so you have time to get it fixed if it does not pass the test. Ask a parent or another adult to help you fix it, or take it to the local bike shop. If it still does not pass the test, don't ride it to school.

Lesson Times

Each lesson is designed to be conducted in 30 minutes, with extensions to 40-45 minutes as your time period allows. The curriculum anticipates that you have a minimum 35-minute class period, but that you may have some other activities at the start of class. Grades 6-8 often have longer classroom periods; the curriculum provides extended lessons for upper elementary and middle school.

Preparing to Teach

BikeSmart On-Bike includes two aspects that are atypical of P.E. classes: 1) the curriculum is designed to work, in part, by asking students to bring their own equipment from home; and 2) the curriculum includes a field-trip for which permission slips may be needed.

Below is a recommended timeline for implementation of *BikeSmart On-Bike*.

Table 4: *BikeSmart On-Bike* Preparation Timeline

Timeline	At School	From Parents / At Home
Prior to scheduling unit	<ul style="list-style-type: none"> If needed, obtain permission to teach the unit. Talk with school administration about space and facilities needs, e.g., use of parking lot or school driveway, arrange for bicycle parking.* 	
Six weeks before	<ul style="list-style-type: none"> Ask students for a show of hands – who has a helmet? How many can bring bicycles? ** If you are planning a bicycle field trip, ask your Regional Planning Commission for assistance with maps (see lesson 5). 	<ul style="list-style-type: none"> Send home parent/ guardian letter #1, with Bicycle Equipment Survey and helmet order form. (See Supporting Materials)
Four weeks before	<ul style="list-style-type: none"> Helmet orders due; place helmet order with Safe Kids Vermont. 	
Two weeks before	<ul style="list-style-type: none"> Conduct <i>BikeSmart Vermont!</i> classroom instruction. 	<ul style="list-style-type: none"> Assign homework as above.
One week before	<ul style="list-style-type: none"> Recruit staff members or local bicyclists from the community for bicycle field trip (Lesson #6). 	
During BikeSmart On-Bike		<ul style="list-style-type: none"> Send home second letter for <i>BikeSmart On-Bike</i>, and permission slip for field trip. Recruit parent volunteers for bicycle field trip.

* If you wish to use a school parking lot or driveway, you will need to arrange this with your administration in advance of the classes. You may use a parking lot with parked cars in it, if it has sufficient space, but no cars should be driven during your classes. To save time getting and storing bicycles, you will find it helpful to have your students park their bicycles near your teaching area. However, don't move the school bike rack to a less convenient location for bicycling to school.

** Asking students increases buy-in for the idea of bringing and sharing their bicycles for the lesson. Don't count entirely on these numbers: students who would need to be driven to school with a bicycle may not consider whether it is practical or realistic to bring the bicycle to school.

Where to Order Helmets

Each student should also be asked to bring his or her own helmet to school. In order to make sure that most or all students have helmets, you may wish to order low-cost helmets through Safe Kids Vermont in advance of this lesson series. Information on helmet ordering can be found at www.healthandlearning.org <Pedestrian and Bicycle Safety Resources> or you may contact Safe Kids Vermont at (802) 847-7055.

Equipment Considerations

Instructor's equipment: To instruct this curriculum, you will need your own bicycle and helmet. You will use these throughout the lessons. Your bicycle should be in good working condition, but does not need to be of any particular style. Your helmet should meet current safety standards (CPSC sticker inside). If your helmet is not recent in style, you may wish to use a student's helmet as an example of more current styling. As modern bicycle helmets are lighter and fit better, you may wish to upgrade your helmet.

Although you will be teaching bicycling, it is recommended to wear regular clothes, rather than bicycling shorts and jersey. Most students do not have specialized bicycling clothing. Do wear clothes that are "light, bright, and tight" – comfortable, light/bright-colored, and tucked close to the body for safety.

Summary: Instructor bicycle in good condition
Instructor helmet
Comfortable clothing

Student's equipment: As noted above, this curriculum asks students to bring their own bicycles from home to be used and shared in instruction. ***You will need at least one bicycle for every three students.*** By having students from all classes share bicycles, you may be able to outfit each PE class with bicycles for every student. If students will share bicycles with other classes, you may wish to have a cable lock to secure all bicycles in this category between classes.

Each student should also be asked to bring his or her own helmet to school. In the first lesson, you and the students will conduct ABC Bike Quick Checks on all of the bicycles to be used for basic safety. If a bicycle does not pass the bicycle safety check, it should not be used for instruction.

If students need to share bicycle helmets, then protective headgear (surgeon's caps) should be used to prevent potential spread of lice. If you need to procure surgeon's caps, your local hospital may be able to donate or sell you some at low cost, or you can order them directly online from a medical supply company. Surgeon's caps are designed to be disposable, and are inexpensive.

Summary: Student Bicycles – at minimum, one for every 3 students
Student Helmets – recommended, one per student
Surgeon's caps – if helmets must be shared

Other Equipment: Each lesson gives a breakdown of the equipment, props and materials needed for that lesson. The table on the next page provides a comprehensive list for the entire lesson series.

Color, laminated traffic placards (car, truck, and bus) may be purchased from the Center for Health and Learning: info@healthandlearning.org or 802. 254.6590.

Table 5: *BikeSmart On-Bike* Props and Equipment

	Lesson 1: Ready to Ride	Lesson 2: Stop & Go, Look Back	Lesson 3: Driving at Intersections	Lesson 4: Bicycle Handling	Lesson 5: Prep for Fieldtrip	Lesson 6: Bicycle Fieldtrip
All Lessons – Bicycles & Helmets for Instructor & Students						
ACTIVITY SHEETS*	<ul style="list-style-type: none"> • <i>Fitting a Bicycle Helmet</i> • <i>ABC Bike Quick Check</i> • Bicycle Team Log 	<ul style="list-style-type: none"> • Car placards (optional) 	<ul style="list-style-type: none"> • Stop signs • Car placards • Traffic light 	<ul style="list-style-type: none"> • Drain grate 		<ul style="list-style-type: none"> • Bicycle Field Trip Leader Information
OPTIONAL based on site	<ul style="list-style-type: none"> • Traffic cones • Chalker or tape • Cable lock 	<ul style="list-style-type: none"> • Traffic cones • Chalker or tape • Cable lock 	<ul style="list-style-type: none"> • Traffic cones • Chalker or tape • Cable lock 	<ul style="list-style-type: none"> • Traffic cones • Chalker or tape • Cable lock 	<ul style="list-style-type: none"> • Traffic cones • Chalker or tape • Cable lock 	<ul style="list-style-type: none"> • Cable lock
EQUIP-MENT	<ul style="list-style-type: none"> • Bicycle floor pump • Bicycle repair tools (see Reference section - Notes on Student Bike Maintenance) 			<ul style="list-style-type: none"> • 5 Kitchen sponges • Water (to wet sponges) • Parked car (unlocked) 		<ul style="list-style-type: none"> • Portable bicycle pump • Bicycle patch kit • First aid kit • Cell phone or radios to communicate with school.
OTHER	<ul style="list-style-type: none"> • Assessment Rubric 	<ul style="list-style-type: none"> • Assessment Rubric 	<ul style="list-style-type: none"> • Assessment Rubric 	<ul style="list-style-type: none"> • Assessment Rubric 	<ul style="list-style-type: none"> • Map of town 	<ul style="list-style-type: none"> • Route maps • Assistant ride leaders (parents or other adults) • Ride leader emergency contact info & plan.

* Activity Sheets are found in the Supporting Materials section at the end of this curriculum.

Setting / Environment

The *BikeSmart On-Bike* lessons are designed to be conducted on your school grounds, preferably outside. The exception is the last lesson, the Bicycle Field Trip, which is conducted on local streets. For the on-site lessons, you may need to set up chalk lines or traffic cones in advance of the lessons. However, if your school site has areas such as driveways or parking lots that you can incorporate into your lesson, you may be able to minimize this set up. Throughout your lesson planning, you are encouraged to think creatively about how to use the existing environment.

Some of the lessons can be taught indoors, in a gymnasium or large multi-purpose room, if this is critical to maintain your teaching schedule. You may need to shift some sections of Lessons #2 and #4 from an indoor to outdoor setting. Any time you are practicing the "look back" skill, a riding area 100-200' in length is needed – preferably outdoors.

LESSON 1: GETTING READY TO RIDE

Time: 30-40 minutes

This lesson is the second of a series of 4-6 lessons, each 30 minutes long, that can be extended to 40 minutes. This lesson focuses on equipment and prepares students for all other lessons.

NOTE: Since this is the first lesson in which student bicycles will be used in class, it may be helpful to ask a local bike shop to send a mechanic to help with any bicycles that have mechanical problems. See additional suggestions in the Instructor's Reference section, Notes on Student Bicycle Maintenance.

Background Information

A properly fitted bicycle helmet is the most important piece of safety equipment, especially for the child bicyclist. Young bicyclists are still developing their sense of balance, learning bicycling handling and road hazard avoidance skills, and refining their understanding of traffic. Inexperience or a mistake in any of these areas may contribute to a fall. Thus, a helmet is even more critical for young bicyclists. A quick bicycle safety quick check ensures the safety of basic bicycle mechanics – tires, brakes, and drive chain. You also want to ensure that the students are using safe bicycles during your class. The lesson concludes with practicing riding in a straight line – to give you a chance to assess your student's current bicycle handling skills, and to give your students a chance to get on their bikes and *move!*

Key Concepts and Skills

Helmet Safety

Know how to wear a helmet
...Eyes, Ears, Mouth
...Adjust helmets for use in lesson

Dress for Safety

Dress "light, bright, and tight"

Bicycle Fit

Know whether a bicycle fits
Adjust seat height

ABC Bike Quick Check

Check air, brakes, chain, and quick releases
Check headset / steering

Bicycle Handling Skills

Ride in a straight line

Assessment

Students should be able to explain and demonstrate the skills and concepts above. If you wish to do a more formal assessment of pre- and post- instruction bicycle handling skills, use the performance-based assessment rubric (see Appendices) to record the current skills of each student during this lesson. Students may use the rubric to assess their own skills or observe and assess fellow students.

Teaching Equipment & Materials

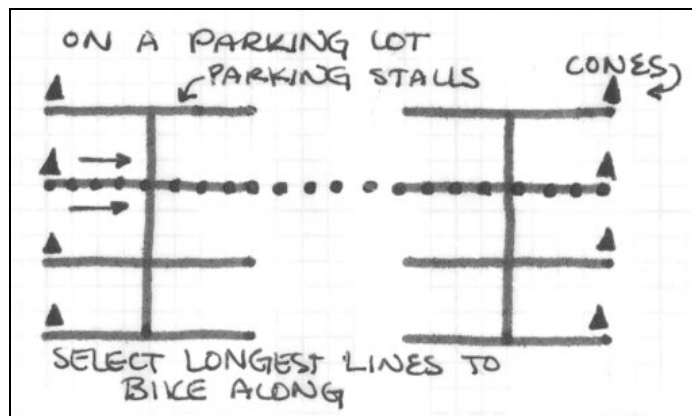
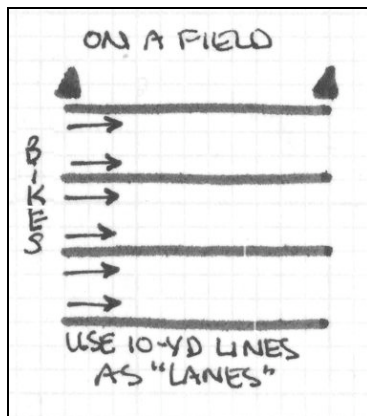
- Bicycles – for instructor & students
- Helmets - for instructor & students
- Surgeon's caps – if helmets must be shared

Lesson Setting & Set-up

This lesson is preferably taught outside, on an athletic field, empty parking area or track. It may be taught inside in a space that is a minimum of 75' long, to allow students to pedal for 50' and stop or turn before the wall. Preferably, this lesson should be taught on days that it is nice enough to go outside.

Setup: This exercise will use one or more lines or lanes for students to practice riding straight.

- **Outside on a field or empty parking lot:** Identify any existing lines you may use, and use two traffic cones to indicate the start and stop points, allowing enough space for students to gather at either end.
- **On a track:** If your track has 4' lanes, you may use the existing lanes. Use two traffic cones to indicate the end of the riding area, or allow students to ride around the track.
- **Inside in a gymnasium or multi-purpose room:** Use traffic cones and existing painted lines to define 6' wide, multiple lanes the length of the room. If students ride around the room, make sure to have a controlled stopping zone or system to hand-off bikes to the next participant.



If you have a local bike shop that is willing to send a mechanic to assist with any mechanical problems, invite them to this lesson, or arrange for them to look at bikes ahead of time if that is possible. For example, if the mechanic could be at the school as students are arriving with their bicycles, he or she may be able to fix any major problems before you get to P.E. class.

Grade Adjustments

Grades 6-8 may be familiar with the equipment safety checks. Move through these exercises quickly, while still emphasizing their importance. If you have additional time for the on-bike portion of the lesson, you may want to make it more challenging, as below:

- Have students ride with one hand (only) while riding straight and braking. Bicyclists should practice being able to ride straight and brake while also signaling a turn.
- If appropriate, move hand-signal section of Lesson #2 into this lesson. Ask students to practice riding straight and/or braking while simultaneously giving a hand signal.
- Narrow the lane width in which students are riding, or challenge students to ride exactly on the painted or chalked line.

Lesson Script

INTRODUCTION

This is the first lesson in the *BikeSmart On-Bike* curriculum, which we will be doing over the next several P.E. classes. The title of the program includes the word “smart” because our emphasis is on thinking while you are riding your bicycle, especially when in traffic.

Our first step is getting our bicycles, our helmets, and ourselves ready to ride. We will be sharing bicycles. Then we'll do some easy riding before the end of class, with an emphasis on riding smoothly and in a straight line.

GET OUT EQUIPMENT – 2-3 minutes

Ask each student to bring his or her helmet. Unlock bicycles and gather in the lesson area. Count the total students with and without bicycles: determine whether you will have teams of two or three (or a mix). If only a few students do not have bicycles, they should form teams of two with students who do have bicycles. Even if everyone has a bicycle, students will take turns serving as "car drivers" and "traffic signals."

BICYCLE FIT – 5 minutes

Explain: First, we are going to determine who can share each bicycle, based on height and bicycle fit. Those of you who have bicycles here, thank you for being willing to share them so that we can all do this unit together. The bicycle you will use today may not fit you perfectly, but we want you to be safe. It is most important that a bicycle is not much too big; it's OK if it is a little bit too big or too small.

Demonstrate: Straddle the top tube, both feet flat on the ground. There should be a three-inch clearance, or more depending on the bicycle style. Sit on the seat. You should be able to sit on the seat with your feet touching the ground. *Note:* Student seat height is lower than for adults.

Activity: The goal of this activity is to find a bicycle that fits you, and to form bicycle teams of three people per bicycle (or two people, depending on your numbers). Have the students line up by height. The students who have bicycles should keep their bikes with them.

Based on height, assign groups of two or three to a bicycle. Ask each group of students to take turns getting on the bicycle and checking it for fit.

Note on bike fit: Some students may own bicycles that are too big or too small for them. If a bicycle size is very off, ask it if is OK to loan the bicycle to another member of the class. If the bicycle is only slightly off, let the student use it as he or she is used to the way this bicycle fits.

Note: The next four sections of the lesson are a review of the *BikeSmart Vermont!* classroom lesson, and should be done quickly.

HELMET SAFETY – 5-10 minutes

When to wear a helmet

Explain: The helmet is the most important piece of biking equipment.

Statistics: It is estimated that 75% of bicycle-related fatalities among children could be prevented with a helmet. That means that for every 100 children that are killed while riding bicycles, 75 of them could have survived if they had worn helmets. It is important to wear your helmet every time you get on your bike! “BikeSmart” means using your brain while cycling ... and being smart means protecting your brains from a fall!

Explain: A helmet does not need to be expensive but it does need to be product certified by the Consumer Product Safety Commission (CPSC). Helmets will have this label inside.

Demonstrate: Look inside your helmet for the CPSC sticker.

Activity: Ask the students to look inside their own helmets for the CPSC sticker and raise their hand when they have found it. Check to make sure everyone finds the sticker. If any helmets do not have this sticker, you may wish not to use it for the lessons.

Note: Prior to CPSC becoming the standard by U.S. law in 1999, bicycle helmets were also certified by Snell, ASTM, and ANSI. As the CPSC standard has now been in place for almost 10 years, it is appropriate to leave the other certifications out of the discussion. However, if you find a helmet that is missing its CPSC sticker but has one of these other stickers, it is still fine to use in class.

How to wear a helmet: Proper helmet fit

Explain: A helmet needs to be fitted for each person’s head. If it is hanging to the side or sliding up, it won’t help you and can actually hurt you if you fall with it on improperly (e.g., by choking or incurring neck and face injuries, etc.) First, we are going to check helmets to see if they fit.

Demonstrate: Check your own helmet by doing an Eyes, Ears, and Mouth check.

Eyes- You should see the very edge of your helmet when you look up

Ears- Straps should meet right under your ear lobes to form a V

Mouth- Strap should be loose enough so you can talk, but tight enough so you feel the helmet pull down when you open your mouth wide.

Activity: Ask the students to put their own helmets on their heads. In their bike teams, have them check Eyes, Ears and Mouth. If the team agrees that the helmet passes the Eyes, Ears, Mouth test, have the students take the helmet off and hold it or set it down safely nearby. Any helmet that does not pass the test, ask the student to leave on his or her head.

How to adjust a helmet: Proper helmet fit

Adjusting helmets can take a long time to do perfectly. Make sure that the helmets are safe, but allow students to take their helmets home to work with their parents on fine adjustments. Manage your time carefully.

Explain: Refer to the *Fitting a Bicycle Helmet* Activity Sheet.

If your helmet does not pass the Eyes, Ears, Mouth test, the first thing you need to do is confirm that the helmet shell fits your head. Unbuckle the chinstrap and loosen the rear

plastic support system (if your helmet has one). If your head will not fit up inside the helmet shell, then the helmet is too small. If your head fits inside the helmet, you may use it as long as the helmet, once adjusted, is secure and not wobbly on your head. If the helmet shell is much too big, you will not be able to adjust it so that it is not wobbly. If the helmet shell does not fit, you need a new helmet.

Provided the helmet is the right size, the primary thing you need to do to make it fit is to adjust the straps. The straps may be holding your helmet on your head the wrong way. The first step is to put the helmet on your head correctly, and then adjust the straps to hold it in the right position.

It can be difficult to get the ear straps perfectly adjusted. For today's lesson, the goal is to make the helmet fit reasonably well, to be safe. You may need to take the helmet home to ask your parents to help you adjust it further.

Demonstrate: Using a student volunteer whose helmet did not pass the Eyes, Ears, Mouth test, demonstrate how to adjust the helmet. Unbuckle the chinstrap, take the helmet off, and loosen the rear plastic support system if the helmet has one (dial or adjustable clamps). Put the loosened helmet back on the student's head -- level with the eyes so that it would pass the "Eyes" test. Then, tighten the rear retention system with the helmet in the correct position.

Next, see how the ear straps fit. If the ear straps do not form a nice, smooth Y under the ears, adjust the ear strap. This is the hardest part of fitting a helmet. An ear strap that is loose in the front or back of the ear needs to be adjusted so that the strap is shorter. If a section of the ear strap is too tight against your head, that section of the strap needs to be longer. Next, adjust the chinstrap to be snug under the chin. There should be space for only one or two fingers under the chinstrap when the mouth is closed. The helmet should pass the "Mouth" part of the test, i.e. when the student opens the mouth, the helmet should pull on top of the head; the student should be able to slip only two fingers under the chinstrap.

Activity: *If needed*, have the students work in teams to adjust only those helmets that did not pass the Eyes, Ears, Mouth test. Move around the room and assist.

Important Note: Do *not* have students un-adjust helmets that are already adjusted correctly – this will take too much time, and you may spend your whole lesson just on helmets.

DRESS FOR SAFETY – 3 minutes

Light, Bright, and Tight

Explain: The clothing and gear you use for biking can help or hinder your safety. Day or evening, it is important to be seen when you are riding. The best way to be seen is to wear white or light-colored clothing. There are also reflective bands you can put on your arms, or you can wear a reflective jacket or shirt.

Demonstrate: Tuck in your own loose shoelaces and/or pant cuffs.

Activity: Ask the students to look at themselves and decide if what they are wearing qualifies as light or bright. In bicycle teams of 2-3, ask the students to make sure their clothes are "tight" – tuck in shoelaces and pant cuffs and any loose strings, straps, or clothing.

ABC BIKE QUICK CHECK – 5 minutes

Note: Refer to the "ABC Bike Quick Check" Activity sheet.

Explain: You should check your bike every time you ride.

Demonstrate: **ABC Bike Quick Check**

Air- Squeeze the tires to check for low air pressure.

- Does the tire feel firm? (If not, use a bicycle air pump to pump up the tire, and then re-check the air. If the tire is still too low, you may need to fix your inner tube, and the bike fails the test.)

Brakes- Handbrakes: Squeeze each brake lever.

- Does the wheel stop quickly? (If not, the brakes aren't working well, and the bike fails the test.)
- Does the brake lever hit the handlebar? (If so, the brakes are too loose, and the bike fails the test.)
- Are the brake pads hitting on the tires instead of on the wheel rim? (If so, the brakes could cause the tire to burst, so the bike fails the test.)
- *Note: Coaster brakes don't need to be checked.*

Crank/Chain- Is the chain on track (not derailed)?

- Is there anything caught in the chain?
- Is the chain clean and lubed? (If not, clean / lube it.)
- Are either of the crank arms loose?

Quick - Check the quick releases on the front and rear hubs and on the seat post.

- Are they in the closed position? (If not, close them. They should be tight enough to leave an impression of the lever on your hand.)

Spin- Spin the wheels.

- Do they spin smoothly? (If not, take the bike to a bike repair shop.)
- Do they have any broken spokes? (If so, take the bike to a bike repair shop.)

Activity: Have each bicycle team conduct the *ABC Bike Quick Check* on the team bicycle. If any bicycles do not pass the test, you may look at the bicycle to see if you can quickly fix the problem. (See "Notes on Student Bicycle Maintenance" in the Supporting Materials.)

If there are tires that are somewhat low, but not critically low, then you may allow the students to use the bicycle for class. Make the bicycle floor pump available after class, or before/after school.

Explain: Today we want to do one additional test. This is not part of the *ABC Bike Quick Check* because you only need to check it occasionally.

Demonstrate: Hold your handlebars even, and check to make sure that the front wheel lines up with the frame of the bicycle. Also check to make sure that you can't move the front wheel side-to-side when you hold the handlebars steady.

- Activity:** Each bicycle team should check the handlebar steering. If anyone has a bike with steering problems, raise your hands.
- Assist:** If any of the bicycles have failed this test, look at the bicycle to confirm the problem. Decide whether the bicycle is usable, i.e., if you can quickly fix it by tightening the stem bolt with a wrench, or if you need to refer the bicycle to a bike shop.

RIDING BICYCLES – 5-12 minutes (or longer if time permits)

- Explain:** In the next part of the lesson, you will practice riding the bicycle in a straight line. You will usually want to ride in a straight line on the road, unless you are turning onto another road or into a driveway.
- Ask:** Why is it important to ride straight on the road?
(So you don't swerve in front of a car or another bicyclist, or crash into the curb or a parked car.)
- Activity:** Have Team member #1 ride the bicycle on the designated course. If the bicycle has gears, put the bicycle into the lowest gear.
- Team members without bicycles may walk or jog in a separate area, or they may observe the team members who are bicycling.
- Ask the students to ride at a fairly quick but comfortable pace, staying in their own lane. This is not a race. Tell the students that you will periodically ask them to stop, to see how smoothly they can stop. After a few minutes, have the students switch who has the bicycle. The class will continue taking turns until the end of class when we will put the bicycles away.
- Have Team members #1 ride for several minutes in their own lanes, and ask them to stop once or twice to see what the current braking skills are.
- Observe:** How straight do the students ride? What are their current starting / stopping / turning skills? If you plan to do a formal assessment of riding skills, use the assessment rubric in the Appendices.
- Activity:** Have team members switch who has the bicycle, and continue with the same exercise with Team member #2 and #3 in turn.
- Admin:** As each team rides, log the names of each student-bicycle team, so that next week the teams are already established. A Bicycle Teams Log is provided in the Supporting Materials.

PUT AWAY EQUIPMENT – 2-3 minutes

The students with bicycles should walk or ride them to the bike rack. All students carry their helmets back to the classroom.

LESSON 2: STOP & GO / LOOK BACK

Time: 30-40 minutes

This lesson is the second of a series of 4-6 lessons, each 30 minutes long, or extendable to 40 minutes. This lesson focuses on starting and stopping smoothly, riding in a straight line, and looking over the shoulder for traffic.

Background Information

Swerving out into traffic is a leading cause of car-bicycle crashes for children and youth. Younger children are more likely to swerve while riding due to simple steering errors. Older children and teens are more likely to get into trouble while turning left without looking behind for traffic. Bicyclists must learn to look over the left shoulder for traffic when turning left. There are also instances in which a bicyclist will need to look to the right; upper grades should drill looking over both shoulders.

Key Concepts and Skills

Bicycle Handling Skills

Smooth starting – power pedal position
Smooth stopping – brakes
Riding in a straight line
Looking over the left shoulder without swerving

Traffic Safety Concepts

Riding on the right-hand side of the road
Identifying if there is traffic coming from behind
Knowing hand signals for left, right, and stop/slow.

Assessment

Students should be able to explain and demonstrate the skills and concepts above. The performance-based assessment rubric provides more formal criteria for assessing starting, stopping, and looking over the shoulder.

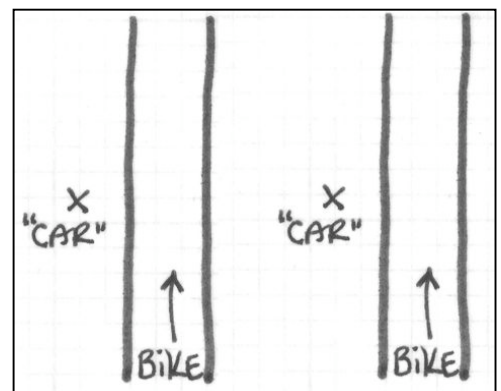
Teaching Equipment & Materials

- Bicycles & helmets – for instructor and students
- Surgical caps – if students must share helmets
- Chalk or tape to mark lanes (or use school track or lines already painted on parking lot or field).
- One car placard per team (optional)

Lesson Setting & Set-up

For this lesson you will need 3 or more lanes, marked with chalk or using lines already marked on your track, parking lot, or field. The lanes should be 4-6' wide and 100-200' long. You may use cones to help delineate the ends of the lanes, but a line still needs to be marked between the cones.

INDOORS: The "look back" part of the lesson may be conducted inside only if you have a space at least 100' long. If you do not have a large enough room and the weather prohibits going outside, you can save the "look back" part of the lesson for Lesson #3, and substitute the first intersection drill from Lesson #3 into this lesson. Starting and stopping drills may be done in a smaller space.



Lanes are 4-6' wide; 100-200' long.

Grade Adjustments

For Grades 6-8, you may wish to proceed through the starting and braking exercises more rapidly, as a review. If, in Lesson 1, you observed stellar starting and braking skills already, you may wish to skip the sections on starting/stopping, or do a quick review mostly focused on down-shifting before stopping. You could then spend more time on the look-back drills. You may also have students practice looking back over the right shoulder. Add the lane-positioning exercise.

With older grades, it is important to emphasize riding on the right side of the road, and why riding on the wrong side may cause a crash.

Lesson Script

INTRODUCTION

Today's *BikeSmart* lesson will improve your skills for starting out, stopping smoothly, riding in a straight line, and looking over your shoulder for traffic. Last week, we spent most of the lesson looking at our equipment. This week, you still need to check your equipment for safety before you ride, but we will do that quickly – the way you would do it every day before you ride your bicycle. If your equipment does not pass the tests, then we will have to stop and fix the problem.

GET OUT & CHECK EQUIPMENT – 5 minutes

Have the students get their bicycles and line up in their bicycle teams.

When the students are ready, have them do the Eyes Ears Mouth test for their helmets, and the *ABC Bike Quick Check* for their bicycles. Have them check clothing – for light or bright colors, and especially for tight (i.e., shoelaces tucked in, no straps, etc.).

Some bikes have only a coaster brake (rear brake by pedaling backwards), some bikes have two hand brakes on the handlebars, and some have a front hand brake and a rear coaster brake. Check in with students to determine what braking systems are present, and whether you need to address coaster brakes. E.g., ask students to raise their hands to indicate whether they have just hand brakes, only a coaster brake, or both.

STARTING AND STOPPING SMOOTHLY – 10 minutes

Explain: First, we will cover a few tips for smooth starts and stops -- and then practice. For all of the lessons today, we will also be practicing riding in a straight line – while starting, stopping, pedaling, and looking over your shoulders.

Ask: Why is it important to start smoothly?
(So you don't lose your balance while you are starting. So you don't wobble into cars as you start. So you have some power to help get you get started if you are going uphill.)

Review: Why is it important to be able to ride in a straight line?
(So you don't swerve in front of a car or another bicyclist, or crash into the curb or a parked car.)

What side of the road should you ride on?
(Right side.)

- Explain:** As we do these lessons, please ride in your lane, and stay to the right side, about 1-2 feet from the right edge of the lane.
- Demonstrate:** Mount your bicycle. Show how to put your rear leg over the back wheel. If any students have bicycles with low-frames, including women's bikes, they may instead "step over" the frame bar. You should not step over the frame with a full-height top tube.
- Explain:** When you start riding, you want to have one of your pedals in the "power pedal position," so that your thigh muscle (one of the strongest muscles in your body) is ready, like a spring, to push down on the pedal and give you a little burst of energy to move the bike forward as you start.
- If your bicycle has a "free wheel" in the back, you can put your pedal in the power pedal position when your bike is stopped by pedaling backward. If your bicycle has a coaster brake, you will need to walk your bike forward slightly while pushing the pedal forward with your foot, to get it into the power pedal position.
- You can do the power-pedal position with either foot, depending which you are more comfortable with.
- To start, push off with the foot that is on the ground, while pushing on your power pedal. Keep both hands on the handlebars. You want to get started smoothly and quickly (but not fast) since the forward motion of the bicycle helps you with balance.
- Demonstrate:** Power pedal position, starting. Ride on the right side of the lane. Coast to a stop.
- Explain:** Next, we will practice braking. If you have brakes on both of your handlebars, those are called hand brakes. If you brake by pedaling backwards, that is called a coaster brake. For those who have both front and rear brakes, it is important to use both together. The front brake provides most of your stopping power.
- Ask:** What are some important things to know about braking?
- It is important not to go over the handlebars! Why would you go over the handlebars?
(By just using the front brake. When you are going down a hill it is even more important to use both brakes together because the combination of downhill momentum and front braking can cause the rider to go over the handlebar.)
 - It is important to remember to steer while braking.
 - It can be hard to brake and use your hands to give a turn signal at the same time. If you have to choose, it is more important to brake safely.
- Demonstrate:** 1) Show how to brake correctly -- squeezing both brakes together.
- 2) If you just squeeze the front brake, your bicycle will rotate around the front wheel. That is why you don't want to use the front brake alone. Squeeze your front brake, and show how the back wheel lifts up easily.

3) Reinforce how to brake correctly. Demonstrate riding a very short distance, and show stopping – braking, putting your foot down, and resetting your pedal to the power position to be ready to start again.

Additional Material for Grades 6-8

Explain: *On a multi-speed bicycle, you should also shift into a low gear before you stop. A lower gear makes it easier to pedal, and easier to get started. Car drivers also shift into low gear to get started from an intersection. With a bike, you need to plan ahead, because on most bikes you must shift while you are still pedaling, before you stop.*

Demonstrate: *Show how to shift your bicycle into a lower gear while you are still pedaling. Show that you need to be pedaling in order for the chain to move from one cog to the other. Show that being in a lower gear makes it easier to start again.*

Ask: *When do you want to shift into a lower gear?
(When you are about to stop, when you are going uphill, or if you are pedaling into the wind – or anytime it feels too hard to pedal.)*

As part of the exercise below on stopping and braking, have the students first try starting from a high gear, and then have them try starting from a low gear.

Activity: Team member #1 will work with the bicycle while team members without bicycles walk or jog in a separate area. Switch after 3-5 minutes, depending on your time.

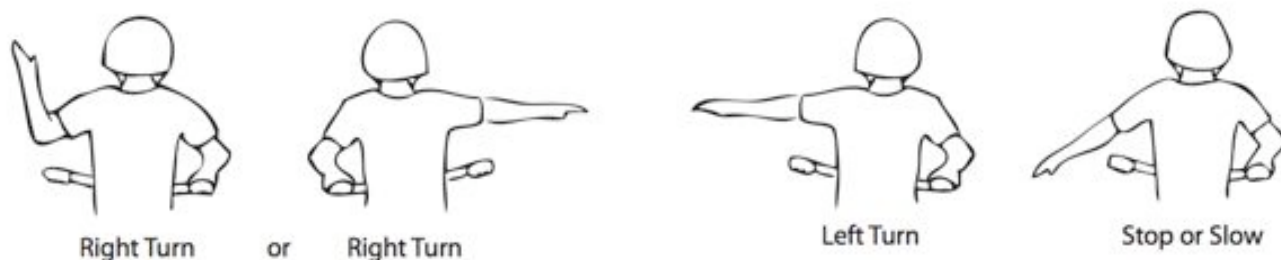
Have team member #1 mount their bicycles and put the pedal into the power position. Start smoothly, pedal a few times and stop. Observe and provide feedback. Then put the pedal into the power position and start again. Ride to the end of the lane and back, stopping 2-3 times in each direction.

Remember to ride in a straight line on the right-hand side of your lane.

HAND SIGNALS – 2 minutes

Explain: Hand signals communicate to the drivers of other vehicles which way you plan to go. There are three hand signals to know: turn left, turn right, and stop or slow.

Demonstrate: Show the signals for left, right, and stop.



Activity: With all students standing and facing the same direction, practice the hand signals.

LOOK BACK, LIFESAVER – 10 minutes

Explain: This is an exercise to practice riding straight while turning your head to look back over your shoulder for traffic. This is a very important skill to be able to find out if there is a car behind you, especially if you want to turn left, or if you want to move toward the middle of the street to avoid a road hazard, like a rock or a pothole. Looking back over your shoulder is called a "lifesaver" because it can save your life. It is also called "scanning."

This is a skill that you will some day use when you are driving a car. Next time you are in a car with someone on a multi-lane road, watch the driver as he or she moves into the left-hand lane. The driver should look back over his or her shoulder to check for traffic. It is very important that the driver doesn't steer left until the way is clear.

When you look back over your shoulder, you need to keep your bicycle pointed forward, and just turn your head. You want to keep the bicycle riding straight ahead. Be careful that you don't also move your arms and handlebars. In addition to turning your neck, you will also twist your upper body, but keep your arms straight ahead.

If you have trouble doing this with both hands on the handlebars, you may drop your left-hand off the handlebars, while continuing to steer straight ahead with the right hand.

This is a good skill to practice with a friend or parent. You may find that your parents could use some practice, too!

Demonstrate: Ride away from the students, and demonstrate looking back over your left shoulder while riding straight. Return to the group, and show up-close how your upper body twists as you keep the handlebars straight. Show how it can be easier to avoid turning the handlebars if you drop your left hand off the handlebars.

Activity: At least two team members will participate in this exercise; team member #3 may walk or jog in a separate area. Team member #1, with the bicycle, will ride in a straight line, along your designated lanes (at least 100' long, but preferably 200' long). Team member #2 will stand at the start of the lane, so that he or she is standing behind the bicyclist.

Team member #1 will ride in a straight line and will periodically be asked to look back over his or her left shoulder to identify if there is a car visible. Team member #2 will check that team member #1 is riding straight while looking. Team member #2 will also be the "car." Call out "ready" and team member #2 will either show or hide the car placard. Then call out "look" and team member #1 should look back and call out "car" if he or she sees a car.

Note: If you don't have car placards for your teams, you may have team member #2 hold up one arm, two arms, or no arms. Team member #1 would identify "one," "two," or "none." You can make this harder by holding up fingers instead of arms.

Rotate positions so that all students have a chance to ride and a chance to be the observer.

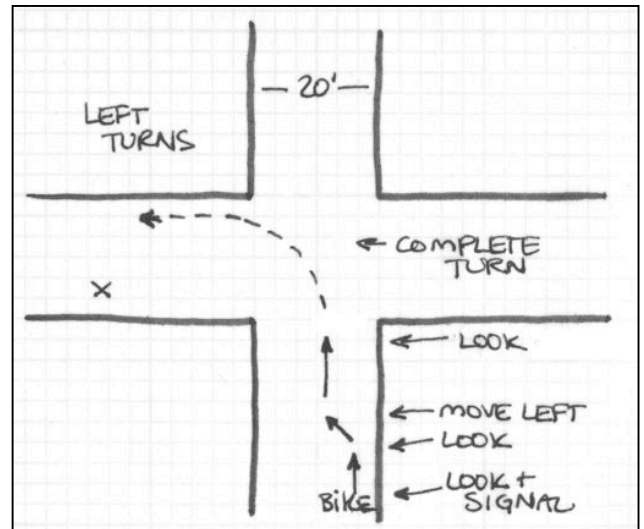
LOOK-BACK AND LANE POSITIONING (Grades 6-8) – additional 5-10 minutes

- Ask:** When would you most use the look-back lifesaver?
(When you are preparing to turn left, and you want to know if there is traffic behind you. Also, if you are riding along and there is a pothole or a rock in the road in front of you, you may need to move to the left in the lane to avoid the obstacle.)
- In addition to looking behind you, how else might you be able to tell if there is a car behind you?
(You might be able to hear the car. If your bicycle has a mirror, you might be able to see the car in the mirror.)
- Why should you not count on these other ways of knowing if there is traffic behind you?
(You might not be able to hear the car if you are going fast, e.g., the wind might be whistling in your ears. This is especially true when you are going downhill. Also, hybrid and electric cars can be very quiet, so you might not be able to hear them. There could also be another bicyclist riding past you, who doesn't make much noise! If you have a mirror, you can use it to check quickly for traffic, but because mirrors have a "blind spot" you still need to look before you move left to turn.)
- Explain:** Now we are going to practice preparing for a left-hand turn. Before you turn left, you should move over to the left-hand side of your lane of traffic. This means you will be riding near the middle of the road, but still in your lane. We are going to practice moving over into the left side of your lane, and turn at the end of the lane.

To prepare for a left-hand turn:

1. Look behind you for traffic.
2. Signal your intention to move left in the lane.
3. Look behind you for traffic again. If the way is still clear, then move left in the lane.
4. Continue riding in the left-hand side of the lane until you reach the turn.

Be careful that you don't look and swerve left at the same time! Look first *and then* move to the left. These are two separate steps.



Team member #2 is going to check to make sure that the bicyclist is looking before moving to the left.

- Demonstrate:** Show how to ride on the right side of the lane, look back for traffic, signal a left turn (extend left arm), look back for traffic again, and then move left in the lane.
- Ask:** What should you do if you look back and see a car, but your left turn is just ahead of you?
(You should pull right, slow down, and let the car pass you, then turn left after the car has passed.)

Explain: If you get to your turn, and there is too much traffic to turn left, then you should stop on the right side of the road and wait for a break in traffic until you can ride your bike directly across. This does mean that you have to wait for a break in traffic in both directions. If there is a crosswalk at this intersection, you may walk your bike across the crosswalk. *Note:* Cars do not have to stop for you if you ride your bicycle across the crosswalk. If you are going to use the crosswalk, you must walk your bicycle.

Activity: Continue the look-back lifesaver drill with students preparing for a left turn by looking, signaling, looking again, and moving to the left side of the lane. Continue to ride straight until the end of the lane.

Make it Harder: If your students have mastered looking over the left shoulder and preparing for a left-hand turn, then have them practice looking over the right shoulder, and moving back to the right side of the lane. Looking over the right shoulder is used less in traffic situations, but it can be useful with multi-lane roadways, or where traffic may be merging from the right.

PUT AWAY EQUIPMENT – 2-3 minutes

The students with bicycles should walk or ride them to the bike rack. All students carry their helmets back to the classroom.

LESSON 3: BICYCLE DRIVING AT INTERSECTIONS

Time: 30-40 minutes

This lesson focuses on bicycling at intersections, including hand signals, riding at stop signs and traffic lights, and lane positioning. If the weather is poor, this lesson may be switched with Lesson #4 which can be done inside, in a gym or multi-purpose room.

If your time permits, this lesson could be expanded into two separate lessons, to practice different intersections of increasing complexity. Concepts of intersection right-of-way and lane positioning are challenging even to adult bicyclists.

Please note that this lesson is split into two tracks – one for Grades 4-5 and one for Grades 6-8.

Background Information

Most car-bike crashes occur at intersections, particularly in an urban or small-town environment. Children and youth are most likely to be at fault in these crashes, due to a misunderstanding of the need to stop at traffic signs and signals, or due to a misunderstanding of who has the right-of-way. Even in rural areas, most car-bike crashes involving children or teens occur at intersections – not on the open road.

Key Concepts and Skills

Bicycle Handling Skills

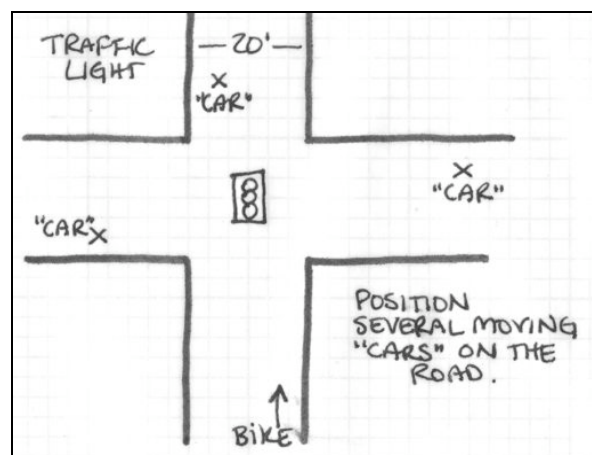
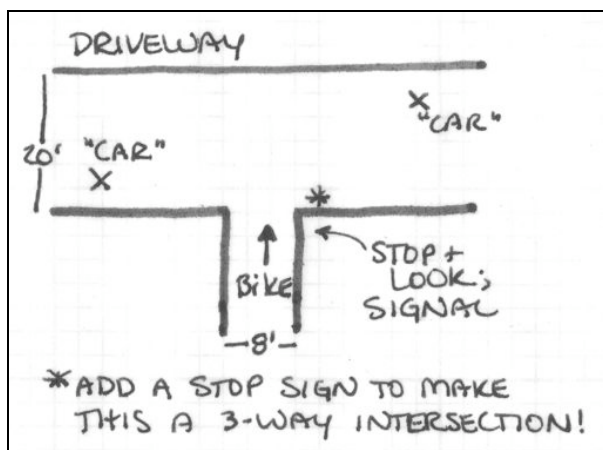
Turning
Hand signals
Lane positions

Traffic Safety Concepts

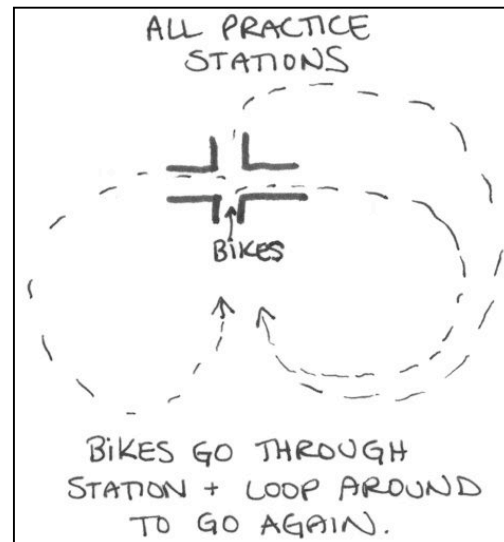
Understanding stop signs and traffic signals
Right-of-way and how to determine who has the right-of-way
Making eye contact with drivers
Using body language to communicate with drivers

Lesson Setting & Set-up

For this lesson, you may choose to use an existing intersection on the school grounds, or set up a "mock" intersection. You will want one three- (minimum) or four-way intersection. The three-way intersection can function as a driveway, or add a stop sign to create a roadway intersection. The four-way intersection may be used with stop signs, or a traffic light.



- **If you want to use an existing intersection on the school grounds,** make sure that there will not be cars using the area at the same time. For example, you may use an "intersection" between a parking lot and a school driveway, or the school bus drop-off area, as long as no one needs to drive in / out of that area while you are holding the lessons. If possible, block off the instructional area with cones or survey tape so cars won't surprise you.
- **Alternatively, you can make a mock intersection** using chalk, tape, or lines already marked on your track, parking lot or field. You may wish to set the intersection up to recreate an intersection near the school or in town. If your site is outside, set up the intersection with an area for your students to ride out of the intersection, and loop around the field or parking lot, to come back to ride through the intersection again. This is a good set-up for all of your lessons that have an intensive practice zone.



Throughout this lesson, students will simulate "traffic." Assign 4-6 to act as cars, holding the car placards. The cars will "drive" back and forth on the street. (Have the cars make a u-turn at the end of your intersection area to always drive on the right side of the street.) Ask the students acting as cars to walk or jog back and forth along the road at a consistent speed – but some cars can move faster than others. The cars should drive in the middle of the lanes, and may pass bicyclists.

The instructor's role throughout the lesson is to regulate traffic – to ask the cars to make more breaks in traffic if needed, and to give each bicyclist the signal to ride in turn.

Teaching Equipment & Materials

- Bicycles & helmets – for instructor and students
- Surgical caps – if students must share helmets
- Tape or chalk to mark intersection (or use school grounds)
- Car placards (3)
- Stop Sign Activity Sheet (4)
- Traffic Signal Activity Sheets (3 images, representing red, yellow, green lights)

Lesson Script

INTRODUCTION

Today's lesson is about driving your bicycle at intersections, with simulated car traffic. This lesson is about riding your bicycle, but it also introduces you to skills that you will use when you start driving a car. Before we start, we will quickly check our equipment for safety, as you should every time you ride.

GET OUT AND CHECK EQUIPMENT – 2 minutes

Have the students get their bicycles and line up in their bicycle teams. When the students are ready, have them do the Eyes Ears Mouth test for their helmets, and the *ABC Bike Quick Check* for their bicycles. Have them check clothing for light, bright and tight.

Track 1 for Grades 4-5

REVIEW – 3 minutes

Ask for a volunteer to demonstrate and explain each of the 4 skills from Lesson #2. Today's lesson will use each of these skills.

1. **Starting.** Check that the student explains the power-pedal position and properly executes a smooth start.
2. **Stopping.** Check that the student explains the importance of using both hands on the handlebars, and properly executes a smooth stop, including returning the pedal to the power position to restart.
3. **Look-back lifesaver.** Check that the student rides in a straight line while looking back over his or her shoulder.
4. **Hand signals.** Check that the student explains all three hand signals: left, right and stop/slow.

YOUR DRIVEWAY, YOUR HOME INTERSECTION – 10 minutes

Ask: What is an intersection?
(An intersection is where roads meet. At an intersection, the edge of one road meets the edge of another road.)

What is the first intersection that you will encounter every day when you ride your bicycle?
(Your own driveway, which forms a three-way intersection with the street.)

Explain: Your driveway is like a small private road, just for your family and visitors to your house. It is best to treat driveways just like miniature roads. At the end of your driveway is an edge, where your private road stops and the public road starts.

Ask: How do you know who has the right to go first at an intersection? What are the two things that affect who goes first?
(There are two things that affect who gets to go first at an intersection: who got to the intersection first, and whether any of the drivers have a stop sign or a traffic light.)

Where a small road meets a big road in a T intersection, who would you expect to have the right to go first?
(The big road will usually have the right to go first. Usually, a small road will have a stop sign, but traffic on the big road will not have a stop sign.)

Explain: Your driveway is just like a small road intersecting with a big road. In a normal intersection, the stop sign goes at the edge of the small road. Your driveway does not have a stop sign at the end of it, but you should treat it as if it does. Pretend there is a stop sign at the end of your driveway.

Demonstrate: Use your mock intersection without a stop sign. Pick one leg of the intersection to be the driveway, and ride down the right-hand side of the driveway. Demonstrate stopping at the driveway – as you come to a stop, you will brake, and stop with one foot on the ground and the other on the pedal in the power-position to be ready to start again. Point out the edge of the driveway, and that there is no stop sign, but that the same traffic rules apply as if there were a stop sign.

Align your position on the driveway with the direction you are turning, just as though the driveway were a road. To turn right out of the driveway, ride on the right side of the driveway. If you are going to turn left out of the driveway, begin by riding on the right side of the driveway, but move toward the center to turn left.

Demonstrate hand signals. If you are going to turn right, signal a right turn. If you are going to turn left, signal a left turn.

Make sure your pedal is in the power-position.

Look left-right-and then left again for traffic. When you are sure the way is clear, ride onto the street.

Ask: If you see a car in the distance, how can you tell how far away the car is and how fast the car is moving?
(Look at where the car is compared to other objects along the road – trees, houses, mailboxes, etc. If the car looks very small, it may be far away. If it is moving fast, you will see that it passes the objects along the side of the road more quickly than if it is moving slowly.)

Explain: It can be hard to judge the speed of other cars, even for drivers. The ability to judge traffic speed is a skill that you can improve with practice. When in doubt, it is better to wait until the car passes and you are sure that it is safe to go.

Activity: Team members #1 with the bicycle will line up at the "house end" of the driveway. Ask the students to make sure the bicycle is in a low gear for the entire exercise.

Assign 4-6 to act as cars, holding the car placards. Assign one student to monitor the end of the driveway to make sure that the bicyclists really stop before they ride onto the street.

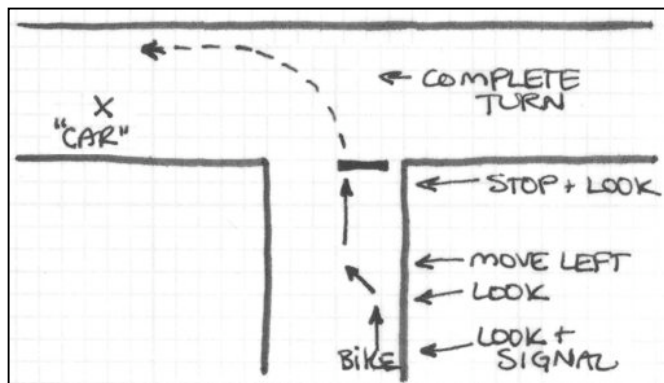
Have the bicyclists take turns riding to the end of the driveway. It is up to them to decide whether to turn left or right, but they should signal the correct direction for their turn.

Assess: Use the driveway entry from the Assessment Rubric in the Appendices.

T INTERSECTION – 5 minutes

Explain: At a T intersection of a small road into a big road, the traffic on the small road will usually have a stop sign, but the traffic on the big road will not need to stop. This is just like the end of your driveway, except that there will be a stop sign at the edge of the small road.

Remember that there may also be traffic coming up behind you on the small road. If you want to turn left, for example, you must look back for traffic, signal, and move left in the lane before you turn.



Demonstrate: Show how to move to the left side of the lane, and execute a left-turn. Point out that the students should not "cut the corner" on either street. Refer to the diagram for lane positioning.

Activity: The set up for this activity is the same as the driveway (above). Assign 4-6 students to serve as car traffic, and direct the cars to use all three streets in the intersection. Assign 1 student to hold the stop sign at the end of the small road; this student will also monitor the bicyclists to make sure they stop.

Have each team member take a turn with the bicycle.

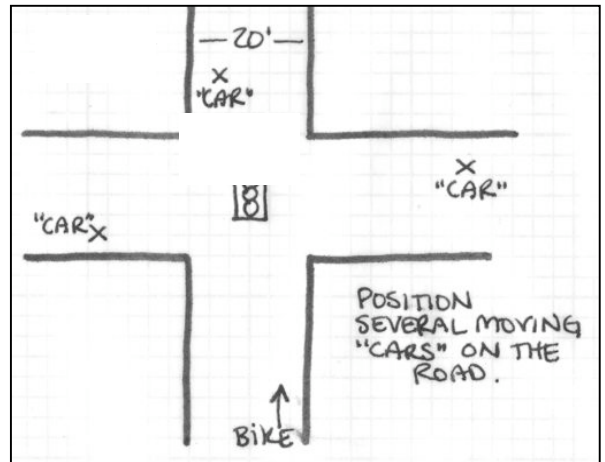
Explain: You see how this is very similar to your driveway intersection. Let's move onto a more complicated intersection.

THREE- or FOUR-WAY STOP – 10-12 minutes

Explain: At an all-way stop, you will need to stop, but the other traffic will need to stop, too.

Ask: How can you tell if an intersection is an all-way stop?
(There may be a little sign under the stop sign that says "4 WAY" or "ALL-WAY." You may also be able to see the backs of the other stop signs.)

Explain: It is very important not to get confused between an intersection where everyone has to stop, and an intersection where only you have a stop sign.



Ask: When you come to an all-way stop sign, who gets to go first?
(Whoever got to the intersection first gets to go first, regardless of whether that person is driving a bicycle or a car.)

Explain: All-way stops are first come, first served. Everyone takes turns in the order in which they arrived at the stop sign. If there is a line of cars on one street, the drivers on that street will take turns with the traffic arriving from other directions.

The rules are the same for bicycles. However, when you are riding a bicycle, the driver may not see you even if you have the right to go first. You must pay attention to whether the driver sees you and/or waves you on. If a driver is talking on a cell phone, adjusting the car radio, or talking to a passenger, they may not see you. Even if the driver looks like they are looking right at you, they may not really see you. When it is your turn, you should go, but you should go carefully in case the driver does not see you to let you have your turn.

Ask: How can you use your body language to communicate to a driver?
(When you are stopped at a stop sign, putting your foot down is body language to show that you are stopped and waiting your turn. You can look at the other drivers at the intersection – turning your head to look at them. Turning your head to look communicates

more than just looking with your eyes. Using a hand signal also communicates to the drivers the direction that you are planning to turn.

How can you tell from a driver's body language what they are planning to do?

(A driver who waves you on is communicating that he or she sees you, and can let you go. A driver who is talking on the cell phone may not be paying attention – use extra caution.)

How can you tell what direction a driver is planning to turn?

(Cars have turn signal lights that flash when the driver activates the light. The light will flash on the side of the car where the car is planning to turn, both front and back. However, not all drivers use their signals, so you cannot count on the turn signal. Sometimes you can tell if a driver is planning to turn by the car's position on the road, or by the direction the front wheels are pointing.)

Activity: As with previous stations, assign 4-6 students to serve as car traffic. Assign students to hold each stop sign, and verify that cars and bicyclists are really stopping at the stop sign. Both bicyclists and "cars" will stop at the stop signs, and take their turns according to the rules of the road.

Ask the car drivers to make eye contact with the bicyclists, and wave or nod to them when it is the bicyclist's turn. If the car has the right to go first, however, then the car should go first and the bicycle should wait. You may ask one student to be an "inattentive" car driver who does not follow the rules (e.g., not watching what he or she is doing, not coming to a full stop, not waiting his or her turn, brushing his or her hair, tuning the radio, etc.).

As with the earlier exercise, the bicyclists should approach the intersection in the correct part of the lane, look back for traffic if turning left, signal their turns, stop smoothly and restart in a low gear with their pedal in the power position.

You can keep it simple, with all bicyclists coming out from one road in the intersection, or mix it up so that "cars" and bicyclists come through the intersections from all the different directions. Both "cars" and bicyclists must follow the stop sign.

Assess: Use the "Traffic at Intersections" entry from the Assessment Rubric in the Appendices.

Ask: What happens if a pedestrian appears at the intersection at the crosswalk?
(Bicyclists must stop for pedestrians in crosswalks, just like cars must stop.)

Conclude: Bicyclists and car drivers all have equal status to take turns at intersections that are all-way stops. Both bicyclists and cars must stop for pedestrians in the crosswalk.

PUT AWAY EQUIPMENT – 2-3 minutes

The students with bicycles should walk or ride them to the bike rack. All students carry their helmets back to the classroom.

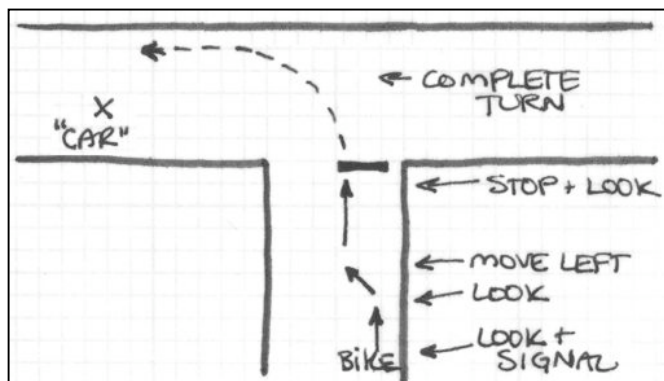
Track 2 for Grades 6-8

T INTERSECTION – 5 minutes

Explain: At a T intersection of a small road into a big road, the traffic on the small road will usually have a stop sign, but the traffic on the big road will not need to stop.

This exercise will have you practice driving through a T intersection. Remember what we learned from the last lesson: Starting with the power-pedal, stopping with both brakes, and looking back over your shoulder.

Remember that there may also be traffic coming up behind you on the small road. If you want to turn left, for example, you must look back for traffic, signal, and move left in the lane before you turn.



Demonstrate: Show how to move to the left side of the lane, and execute a left-turn. Point out that the students should not "cut the corner" on either street. Refer to the diagram for lane positioning.

Activity: Assign 4-6 students to serve as car traffic, and direct the cars to use all three streets in the intersection. Assign 1 student to hold the stop sign at the end of the small road; this student will also monitor the bicyclists to make sure they stop.

Have each team member take a turn with the bicycle.

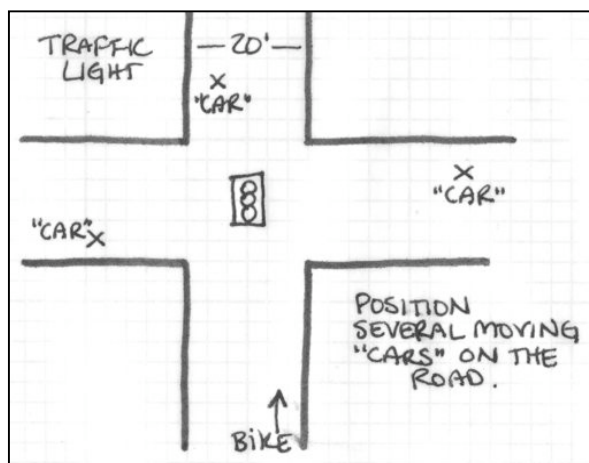
ALL-WAY STOP – 10 minutes

(This exercise is the same as for Grades 4-5 - See page 27.)

TRAFFIC LIGHTS – 15 minutes

Ask: How should bicyclists approach an intersection with a traffic light?
(Bicyclists must follow the same rules as the drivers at the intersection. A red light means stop.)

Explain: A traffic light is usually placed at a fairly busy intersection and gives several drivers in a row from the same direction the right to go, one after the other. A traffic light is different than a stop sign. Instead of taking turns, the opposing traffic (the traffic facing you) has the right to go at the same time. If you are both going straight, you simply pass each other. Any traffic that is turning left must wait for the traffic going straight to go first.



Traffic lights would be easy if all cars were going straight. What makes intersections with traffic lights complicated is turning traffic. When you are coming up to a traffic light on your bicycle, you must be cautious of drivers who are turning. And, if you are the one who is turning, you must be cautious of the drivers who are going straight.

Generally, drivers or bicyclists who are turning left must wait for drivers who are going straight or turning right. Left turns are therefore the most difficult turn to make at a traffic light.

When riding your bicycle through an intersection with a traffic light, you plan your path through the intersection in advance, and position yourself so that drivers can tell from your lane position, body language, and hand signals, what you are planning to do. You want to convey confidence and place the bicycle in a place where drivers are expecting to see traffic. You and your bicycle are traffic, just as a car is traffic.

Demonstrate: Demonstrate lane positioning for a bicyclist approaching the intersection.

Turning right: Ride on the right hand side of the road, signal your turn, and proceed through the intersection on the green light. If there is a right-turn lane, indicated by a big white arrow painted on the pavement, use the right turn lane.

Going straight: Ride up to the traffic light on the right hand side of the road. Before you get to the intersection, look back over your left shoulder for traffic, and when the way is clear, move slightly toward the center of the lane. Proceed straight through the intersection on the green light. If there is a right-turn lane but you are going straight, do not ride in the right turn lane. You should be on the right side of the lane that will go straight.

Explain: Watch out for cars turning across your path that may not see you. It is ok to make noise – yell, shout, or ring a bicycle bell – if you think a driver does not see you. If the light is red when you get to the intersection, you need to wait in line with the cars. Otherwise, wait in line behind the last car that was there when you arrived at the intersection.

Be careful of cars turning right. If you come to a red light with a car already at the intersection, stop behind the car. Do not pull up on the right side of the car. The car may turn, even if the driver does not have a turn signal on.

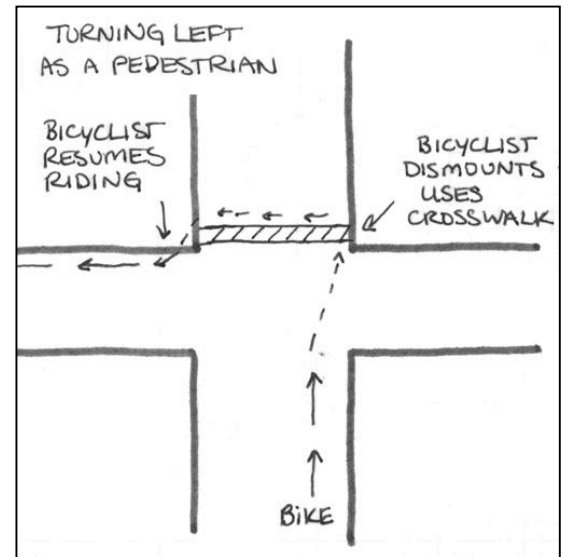
Activity: Have the students bicycle through the intersection, turning right or going straight. Assign 4-6 students to act as cars. You should stand in the middle of the intersection and serve as the "traffic light". Practice this until every student has had a chance to ride through the intersection at least once. Then proceed to left turns.

Explain: Turning left is more complex than going right or straight. When you are turning left, you must always use extra caution because the traffic across from you has the right to go first, even when you have a green light. Sometimes it is safest to turn left by getting off your bike and becoming a pedestrian. You should turn left as a pedestrian any time the street has more than 1 lane of traffic in each direction, or if the traffic is very fast.

Demonstrate: **Turning left using crosswalks.** Ride your bicycle straight across the intersection, then dismount your bicycle, and walk across the crosswalk to the other side, like a pedestrian.

Note to instructor: Depending on your community, you may limit your instruction for turning left to using the crosswalks as a pedestrian. Generally, students in Grades 6-8 should be able to turn left at a traffic light in a village setting (slow speeds) if there are not multiple lanes of traffic, or if there is just an extra turning lane.

In fast or heavy traffic, all but the most skilled adult bicyclists may wish to use the crosswalk method.



Explain: The other way to turn left is as a vehicle, on the road. Remember that the opposing traffic that is going straight gets to go first, before any traffic that is turning left. Turning left at a small intersection with a traffic light is similar to any other intersection. Look, signal, look, move left, and then get ready to turn left on the green light.

When you have a green light, you must wait until the lane opposite you is clear. If a driver waves you on in this situation, make sure that there is not a driver right behind that first car. The driver who is behind might not see you and could pull around the first car, hitting you.

A green arrow indicates a special rule for who gets to go first. With a green arrow to the left, the traffic turning left has the right to go first. The traffic on the other side of the road that is going straight still has a red light and has to wait.

If you are not sure how an intersection works, you may want to ride over to the intersection and watch how it works as the lights change a few times. Who has the right to go, in what order? Does the light have any special arrows indicating a special right to turn?

Demonstrate: **Turning left as a vehicle.** Ride through the intersection, making a left turn by looking, signaling, looking, moving left, and riding through the intersection. Emphasize that students should turn left by crossing as a pedestrian at any multi-lane intersection or on a busy or fast roadway – or any road where they feel uncomfortable turning left as a vehicle.

Activity: Practice left turns. Ask each student to try the left turn as a pedestrian and as a vehicle.

PUT AWAY EQUIPMENT – 2-3 minutes

The students with bicycles should walk or ride them to the bike rack. All students carry their helmets back to the classroom.

LESSON 4: BICYCLE HANDLING SKILLS

Time: 30-40 minutes

This is the fourth lesson in the series, although it may be switched with Lesson #3. This lesson focuses on more advanced bicycle handling skills, including emergency maneuvers. This lesson is best done outside, but some portions may be done inside if the weather does not cooperate.

Background Information

Remember, most bicycle crashes for bicyclists of all ages, but especially children, are falls. This lesson concentrates on improving bicycle handling skills, and learning how to avoid road hazards that may cause a crash.

Key Concepts and Skills

Bicycle Handling Skills

Balance
How to stop quickly; emergency quick stop
Riding to avoid obstacles
Emergency obstacle avoidance; rock dodge

Traffic Safety Concepts

Identification of potential roadway hazards

Assessment

Students should be able to explain and demonstrate the following skills:

- Roadway positioning to avoid roadway obstacles
- Emergency Quick Stop
- Rock Dodge

Students should also be able to explain what constitutes a roadway hazard. A more formal performance-based assessment may be completed using the rubric from the Appendices.

Teaching Equipment & Materials

- Bicycles & helmets – for instructor and students
- Surgical caps – if students must share helmets
- Sponges in a bucket of water
- Piece of paper representing drain grate (see Supporting Materials)
- A real parked car, unlocked so you can open the door

Lesson Setting & Set-up

This lesson is preferably taught outside, on an athletic field, track, or empty parking area; or inside in a room in which the students may ride bicycles. If you must teach this lesson inside, you will need to do the exercise on the roadway hazards in a different format: presenting one roadway hazard at a time.

This lesson has three areas to be set up:

- For the Slow Race, use a traffic cone or line to designate an area that is about 50' long.
- The section on Riding with Road Hazards uses a long driveway or simulated roadway with multiple hazards along the length. You may use a driveway on your site, or create a mock roadway 150-200'

long with chalk or tape. Along the lane or driveway, set up a series of road hazards, as on the diagram below. If you also wish to cover railroad tracks, use chalk or tape to draw a set of tracks at a slight angle to the road, as show in the diagram on page 36. For this lesson, you will also need access to an unlocked car, so that you can open the door to demonstrate the need to ride away from car doors. (This could be your car, or that of another staff person.)

- The Rock Dodge (optional) uses 5 wet sponges to create a small obstacle course, as shown in the diagram on page 37. The reason the sponges are wet is to keep them from blowing away.

Lesson Script

INTRODUCTION

Today's lesson is going to focus on bicycle handling skills. It will challenge your skills of balance and coordination, as well as teach you how to look out for hazards on the road. The better your bicycle handling skills, the faster and safer you can move on the road.

GET OUT & CHECK EQUIPMENT – 2-3 minutes

Have the students get their bicycles and line up in their bicycle teams.

When the students are ready, have them do the Eyes Ears Mouth test for their helmets, and the *ABC Bike Quick Check* for their bicycles. Have them check clothing for light, bright and tight.

SLOW RACE – 2 minutes

Ask: Is it harder to go fast or slow, when riding a bicycle?
(It is harder to go slowly.)

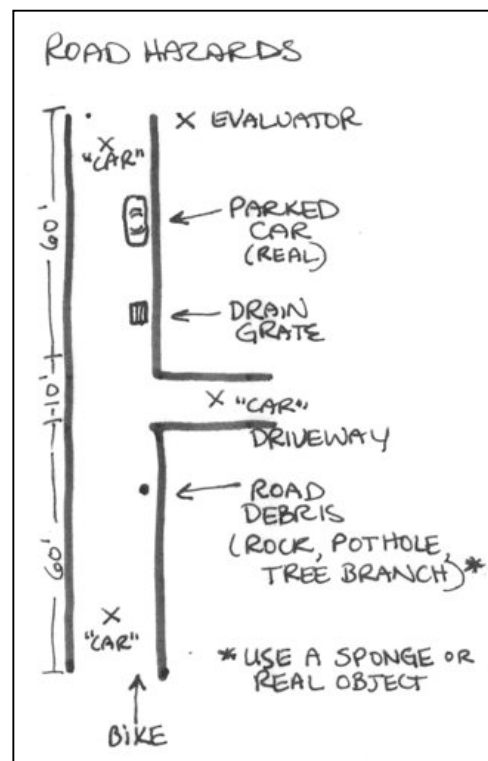
Explain: Our next challenge is to practice balance. It is much harder to balance your bicycle when it is going very slowly, or stopped. This exercise will challenge each of you to see how effectively you can balance.

You may have seen some bicyclists balance on their bicycles at a complete stop, and stay that way for several minutes. Some mountain bikers can do this, and it is something that bicycle messengers (bicycle package delivery services, often in cities) will do when they are riding in traffic. This is called a "track stand," and to learn how to do it, you can start by practicing riding slowly.

This exercise is to practice riding slowly, but without falling over. If you have to put your foot down to catch yourself, that will take you out of the race.

Demonstrate: Show how to ride your bicycle slowly. If you can do a track stand, this is a chance to show off to the class! When you have to put a foot down, stop and proceed.

Activity: Have Team members #1 with the bicycle line up at one end of your practice area, and ride as slowly as possible to the other end of the 50' area. The other students can watch the race.



The last person across the finish line "wins." Any bicyclist who has to put a foot down is disqualified and is out of the race.

Rotate the bicycles, and run the race again with the other team members riding.

Ask: How is riding slowly a useful skill to have?
(It improves your balance, and you may use it in traffic, such as when you need to wait for a car to pass you.)

IDENTIFYING ROAD HAZARDS – 3 minutes

Explain: As you are riding your bicycle on the right side of the road, you should be looking ahead, and thinking about potential hazards ahead of you. If you see an obstacle in your path, you should plan in advance to stop or steer out of the way. If you need to move further out into the roadway to avoid an obstacle, do the life-saver look-back to ensure that there is no traffic before you move into the traffic lane.

Ask: Which side of the road should you ride your bicycle on?
(The right side.)
How far from the edge of the road (or the edge of the curb/sidewalk) should you ride?
(You should ride about two or three feet into the roadway from the edge of the curb.)

Explain: You should ride far enough from the edge of the road or the edge of the curb to give yourself room to maneuver.

Ask: What are some obstacles that you want to avoid hitting?
(Rocks, potholes, drain grates, tree branch lying in the road, broken glass, sand or gravel on the road, untrimmed vegetation/shrubs along the road, car pulled off along the side of the road, etc. You also might need to pass a slower moving bicyclist.)



How far away should you ride from a car parked along the roadway?
(If a car is parallel parked, i.e., parked alongside the curb, ride about three feet away from the side of the car.)

Explain: People riding in cars may open their door into your path without warning. Bicyclists call this being "doored." To avoid this hazard, you need to ride far enough away from car doors to avoid the hazard. If there is just one car, you may be able to see into the windows to see that the car is empty; then it is OK to ride closer to that car. If there are several cars parked in a row, it is very hard to see into every car window. You should ride far enough from the cars to avoid being doored. Being doored can be a very serious crash. You could fly over the car door, or be hit by a passing car.

Demonstrate: Go up to the unlocked car, and open the driver's side door. Show how far out the door extends into the street. Have a student with a bicycle ride past the car with the extended

door, and point out how far into the street you must ride to avoid the car door. Different size cars have different length doors. Three feet from the car is a good general rule, but be alert!

Explain: Any time you need to move into the roadway because of a hazard ahead, make sure that you do the lifesaver -- look, signal, look again, and then move left. The further in advance that you identify the need to move left, the sooner you can make sure that you will have a gap in traffic to do so safely.

Once you are riding further left in the roadway, cars behind you will need to wait until it is safe for them to pass you. As soon as the obstacle is safely behind you, move back to the right side of the road.

If there are cars parked along the road, but not in every space, do not weave in and out of the spaces. Instead ride along the line of cars as though there were a car parked in every space.

RIDING WITH ROAD HAZARDS – 10 minutes

Explain: The roadway in front of you has several potential road hazards along it. I want you to ride down the right side of the road, two or three feet from the edge of the road. When you see a hazard ahead of you, plan in advance to do a look-back lifesaver – look, signal, look, and move left – and avoid the hazard.

Demonstrate: Ride down the roadway on the right hand side. As you approach the first road hazard, demonstrate doing a look-back lifesaver. Then, look back to confirm no traffic and do a U-turn to ride back to the students.

Activity: Have Team member #1 with bicycles ride along the roadway. Have everyone ride through once, then again with several members of the other team using the car placards and acting as cars, driving along the lane with the bicycles. The bicyclists should make sure to look for cars before moving left into the lane.

Assessment: Use the assessment rubric from the Appendices.

RAILROAD TRACKS – 5 minutes

If there are railroad tracks in town, especially near the school, this exercise should be prioritized.

Explain: Railroad tracks and drain grates are both particularly dangerous to bicyclists. Both have long "slots" that can grab your bicycle wheel and force your wheel in a different direction than you are trying to go – this causes you to fall.

Any time you see a long, skinny hazard that could grab your bicycle wheel, the way to ride across this safely is to steer your bicycle wheel perpendicular to the hole.

Demonstrate: Use the drain grate activity sheet to show how a bicycle wheel could get stuck in the long slots of the grate. Explain how a railroad track could similarly force the bicycle wheel to go along the length of the track. Show how to ride across the drain grate with your wheel perpendicular to the slots.

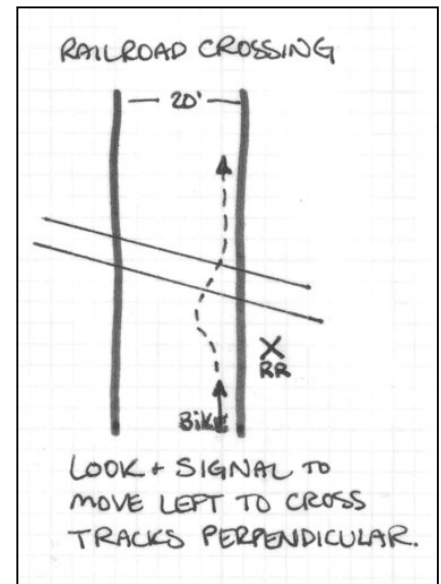
Explain: Railroad tracks are also slippery when wet. Obviously, you also need to stop if there is a train coming! If the gates come down at a track, if the lights are flashing, or if you hear a train blowing the whistle, do not try to cross the track in front of the train. Trains cannot stop quickly like cars can to avoid hitting you. It can take a train a mile to come to a stop. When there are no trains on the tracks, the tracks themselves can still cause you to fall.

To cross railroad tracks with your wheel perpendicular to the track, you may need to move into the roadway.

Demonstrate: Using your mock railroad tracks, have the students gather around your bicycle as you show the difference between the bicycle wheel being parallel vs. perpendicular to the tracks. Show the danger of crossing the tracks at an angle, and how the tracks can "grab" the wheel, causing a fall.

Then, have the group back up while you demonstrate riding across the railroad tracks. If the railroad tracks cross the street at an angle, you may need to adjust your own riding position to go over the tracks with your wheel perpendicular to the tracks. If you need to move into the roadway to cross the tracks safely, make sure to check for traffic on the road before moving into the road.

Explain: Railroad tracks are often bumpy. If you are going over a bump – tracks, a pothole, or another bump – you can brace yourself for improved stability. Stop pedaling, and put your pedals at 3 o'clock and 9 o'clock position (parallel to the ground), and raise your butt slightly off the saddle, with your weight on your legs and your knees bent. Your knees act as springs to cushion the bump.



Activity: Practice crossing the mock railroad tracks perpendicular to the tracks. Students should look back, signal, and move left in the lane to cross the tracks perpendicular.

Note: If the tracks are angled the other way, the bicyclist will need to ride across the tracks and then into the travel lane on the other side of the tracks.

QUICK STOP – 5 minutes (optional, as time permits)

Explain: This drill will teach you how to stop very quickly, without going over the handlebars.

When you brake on your bicycle, the front wheel does most of the stopping. As you will remember from our first lesson on braking, if you brake with just your front brake, you could go over the handlebars. If you brake very hard, even if you are using both brakes, your weight will still shift forward, and you could lose your balance, skid out, or go over the handlebars. There is a technique called the quick stop that will allow you to stop very quickly but without crashing.

Demonstrate: Ride your bicycle past the students, pedal a few strong strokes to get up some speed, and then do a quick stop. Shift your body weight back on your bicycle so that your butt is hanging out behind the bicycle seat. Squeeze harder on the front brake than on the rear. If the back wheel starts to skid, ease up on the front brake.

Explain: The most important difference between this stop and an ordinary stop is shifting your weight toward the rear of the bike. You would do a quick stop like this when you are riding fast, and you suddenly need to stop.

Activity: Allow students to ride on the field or parking lot, all going the same direction, but taking turns or riding spread out so that each student has enough space to practice braking. Have the students pedal a few strong strokes before braking.

Assess: The quick stop is included in the performance-based assessment rubric in the Appendices.

ROCK DODGE – 5 minutes (optional, as time permits)

Explain: If you don't have time to avoid a rock or other road hazard, you may be able to use the rock dodge to steer around it at the last minute.

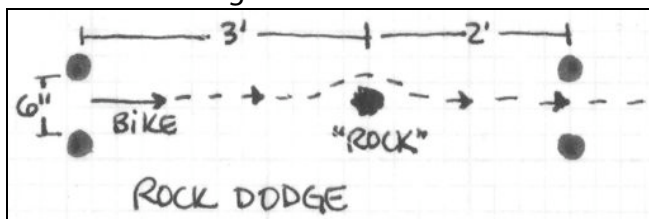
Most of the time when you are riding your bike, you want to steer in gradual curves, so that you don't suddenly swerve in front of drivers. In the rock dodge, you need to steer very quickly to avoid a rock that is right in front of you. You'll turn the handlebar to steer around the rock, and then turn it right back.

When you turn your handlebar, watch how the bike leans.

Demonstrate: Turn the handlebar to the left, and show how the bike leans to the right. Turn the handlebar to the right, and show how the bike straightens up. Doing this sequence quickly is how to get past a rock.

Explain: The front wheel is the wheel that steers on a bicycle. If you hit something with the front wheel, there is a good chance that you will fall. When you do the rock dodge, you first steer around the rock, and then straighten your front wheel while your bicycle frame is still going over the rock. If you hit the rock with your rear wheel, you probably won't fall because it's the front wheel that is most important for steering and balance.

Demonstrate: Show a rock dodge.



Ask: If you see a rock ahead of you on the road, what are your options?
(If you see the rock soon enough, look over your shoulder to the left, and if there is no traffic behind you, signal and then move left in the lane to avoid the rock. However, if you look behind you and there is traffic behind you and you don't have time to avoid the rock, then use the rock dodge.)

Demonstrate: Show how looking over the shoulder and moving left or right in the lane to avoid the rock is the preferred technique, but that the rock dodge can prevent a fall when you notice a rock at the last minute, or if there is traffic hemming you in.

Activity: Let each student ride through the rock dodge, and try to avoid the rock by quickly steering away from the rock, and then snapping the front wheel the other direction to straighten up the bicycle.

Assess: The rock dodge is included in the performance-based assessment rubric in the Appendices.

PUT AWAY EQUIPMENT – 2-3 minutes

The students with bicycles should walk or ride them to the bike rack. All students carry their helmets back to the classroom.

LESSON 5: PREPARING FOR A BICYCLE FIELD TRIP

Assess your classes before deciding whether to do the next two lessons. Are they ready to go for a ride on the road? Some classes may not be ready. In some classes, there may be one or two students who could benefit from additional supervision. Would increasing the number of adults on the ride be an adequate solution? You will need to recruit 2-4 adults to assist with a typical class; more adults may be needed depending on the situation.

The other lessons have worked with students sharing bicycles. The bicycle field trip will require all students to have their own bicycles. Will all students be able to bring or borrow a bicycle for this lesson?

Time: 30-40 minutes

This lesson will prepare your class for a bicycle field trip to a destination in town. The students will learn how to assess a route, determine nutritional needs, and prepare to carry extra gear (rain jacket, etc.) on the bicycle. The class will then have additional on-bike practice.

Key Concepts & Skills

Nutrition Keeping hydrated Selecting a food to take bicycling	Traffic Safety Skills Selecting a route for bicycling
--	---

Teaching Equipment & Materials

- **A large map of town**, including the school and potential destinations. You can ask your local regional planning commission (RPC) in advance for a large map. *Allow at least a month lead time for them to get you a map.* For contact information for your regional planning commission, see <http://crs.uvm.edu/rpcs/>
- **Small copies of the same map.** Also ask the RPC for a copy of the map on a regular sheet of paper, so that you and the other ride leaders can take the map along on the ride.
- Markers to use on the map
- Water bottle
- Sandwich, package of crackers, cookies like fig newtons, or a nutrition bar
- Backpack
- Bicycles & helmets – for instructor and students
- Surgical caps – if students must share helmets
- Tape or chalk, Stop Sign and/or Traffic Light Activity Sheet

Lesson Setting & Set-up

For this lesson, you will need an inside space to prepare for the field trip, and an outside space such as an athletic field, track, or unused driveway/parking lot to practice on-bike skills. Set up the instruction space based on what skill drills you choose for the day (see on-bike lesson portion below).

In advance of the lesson, select a route. Consider possible destinations for a bicycle ride that will go 2-4 miles from school, round trip. You might want to arrange to stop for a snack at a local park, pass by the library, pedal to the movie theatre, and stop at the local swimming hole or recreation field.

Are there roads or intersections that you want to avoid riding with your class? Or, are there any roads or intersections that you would like to give your students the opportunity to ride, as part of a supervised setting? If there is a tricky intersection in town that many students ride through regularly already, this is a perfect time to improve their safety.

If possible, design a route to include a "shortcut" to return to school if you are running late. If you use an out & back route, select multiple turn-around points so that you can adjust the ride length based on time.

Ride the route yourself in advance. If possible, ride it at a similar time of day to when your class will ride. This will enable you to experience traffic levels, which could be particularly relevant for any morning classes that may be during the later part of "rush hour." Make sure you are comfortable with the route for your class' skill level, and adjust if needed.

Decide where you will stop to gather to talk through any larger intersections before riding through them with the class: pick a location that is out of the way of traffic and has the intersection in view. If possible, plan to stop at the first intersection, even if it is a small one.

Map out the route. Use highlighters to draw on the map to indicate one or more acceptable routes.

Lesson Script

INTRODUCTION

In this lesson, we will prepare to go for a bicycle field trip which we will do next class. We're going to use a map of town to think about our route, and plan what we need to bring with us. Then we'll get back on our bikes and do some more riding to prepare.

EXPLAIN THE DESTINATION & ROUTE – 10 minutes

Ask: First, let's think about the roads nearby. Would you feel comfortable riding your bicycle on these roads? Think about how much traffic there is. Are there many trucks? Are the cars moving fast or slowly on these roads?

Explain: Point out the features of the route that you will ride together for the next lesson:

- Destination
- Length in miles
- Length of time to ride

Trace out the route and talk through the names of the streets. Mention any landmarks along the way – such as, "At the intersection of Main St. and Elm St., we will turn left onto Elm St. That's the intersection with the new restaurant on the corner."

Ask: What do you know about these roads? Invite the students to think about riding their bicycles along this route, and if they have any question or concerns.

- Are there any big intersections that we need to plan ahead for?
- Are there roads with fast traffic or lots of cars?
- Are there quiet roads or neighborhood streets?
- Think about how this route compares to the bicycle route that you would use to ride your bike to school. Maybe you would go along some of the same roads.

What questions do you have about this route?

Are there any places along the route that you would like to talk in advance about riding with traffic?

NUTRITION AND HYDRATION – 5 minutes

Explain: On this field trip, we are only going to be gone a short time. Any time you are riding your bicycle far from home, you should think about bringing along some food and water.

Ask: What happens when a car runs out of gas?

(The car stops.)

What happens if you are not near a gas station when your car runs out of gas?

(You have to figure out a way to get to the gas station to get some more gas. You might need a tow truck.)

Explain: When you are riding your bicycle, your food and water are your fuel, because you are the engine! It is important to make sure that your engine has fuel. Make sure you have eaten before you leave on your trip, and drink some water so that you are not thirsty when you get started. One good way to carry along fuel on your bicycle is to put some food and water in your backpack.

Demonstrate: Take your full bottle of water and your sandwich (or other food) and put it in your backpack.

Ask: What are some smart choices for types of food to take on a bicycle trip?

(Foods with carbohydrates for fuel, e.g., fruit, sandwich, crackers, cookies.)

Is a candy bar a good choice?

(That's not as good a choice because most candy bars are empty calories – they have only simple sugars. If you eat a candy bar you may get a quick burst of energy, but you may run out of energy again before too long.)

What about celery and carrots? Are those good choices?

(The celery is good for you because it contains fiber. However, it does not contain many carbohydrates, so it is not very useful as fuel. The carrots have more carbohydrates in them, and vitamins, especially vitamin A. Crackers provide a good carbohydrate balance when you bring vegetables with you.)

Homework: For next week, bring a bottle of water and a small snack that includes some carbohydrates, and bring a backpack or some other way to carry this on your bicycle. Also, make sure to eat a healthy breakfast or lunch before we ride.

Ask: What are some other ways to safely carry things on your bicycle?

(Put it on your bicycle rack, in a bicycle basket, or in a bicycle bag. Your bicycle might also have a special holder for a bicycle water bottle.) *Note:* Most kids' bikes in this country don't have any of this equipment – but nearly all kids' bikes in Europe do!)

GET OUT & CHECK EQUIPMENT – 2-3 minutes

Have the students get their bicycles and line up in their bicycle teams.

When the students are ready, have them do the Eyes Ears Mouth test for their helmets, and the *ABC Bike Quick Check* for their bicycles. Have them check clothing for light, bright and tight.

ON-BIKE SKILLS – 15 minutes

Based on how your class has done in previous lessons, you may choose to reinforce a particular lesson or skill. Or, if there is a challenging intersection in the upcoming ride, you may wish to mock up that intersection for practice.

If no particular lesson or intersection stands out as needing work, repeat the all-way intersection or traffic light stations from Lesson #3.

PUT AWAY EQUIPMENT – 2-3 minutes

The students with bicycles should walk or ride them to the bike rack. All students carry their helmets back to the classroom.

Ensure that you have received permission slips from all students participating in the bicycle field trip before the next lesson.

LESSON 6: BICYCLE FIELD TRIP

Time: 30-40 minutes

This lesson is a field trip by bicycle, following the route that the class worked out the previous week. The class will ride on local streets with traffic. You will stop and talk through intersections, i.e., the first intersection and any particularly tricky intersections.

Teaching Equipment & Materials

- Bicycles and helmets for all participants
- Small maps with route marked for ride leaders
- Activity Sheet: Bicycle Field Trip Leader Information (distribute in advance to adult volunteers)
- Ride leader emergency contact information & plan (see below)
- Bicycle patch kit
- Portable bicycle pump
- First aid kit

Lesson Set-up

Assistant ride leaders (adult bicyclists): You will need to recruit some other adult bicyclists to join the class for the field trip, to make an approximate ratio of one adult for every 5-7 kids. For a typical class, you will need to recruit 2-4 parents or other school staff. You may wish to ask the principal, health educator, or other educators who are bicyclists. You could also ask your local park/ recreation department staff. A local bicycle club may also have members who can help.

Prepare your volunteers by giving them the Bicycle Field Trip Leader Information. Check that each volunteer has a helmet and a bicycle that will pass the *ABC Bike Quick Check*!

If you have students who could benefit from additional supervision, you may wish to take this fact into consideration when recruiting assistant leaders.

Make a plan to follow in case of emergency.

- ☐ Take a cell phone or walkie-talkie that will enable you to contact the school office and/or emergency services.
- ☐ Find out in advance if any of your assistant ride leaders can bring a cell phone or walkie-talkies – and get their cell phone numbers.
- ☐ Find out in advance if any of your assistant ride leaders are skilled in bicycle maintenance, know how to fix a flat, or are certified in first aid.
- ☐ Make an information sheet for everyone leading the ride, so that everyone has each other's cell phone numbers and knows each other's skills (bike repair, first aid). Leave a copy of this at the school office.
- ☐ Think about how you would deal with the instance in which a student gets a flat tire or has another equipment failure enroute. You may be able to assign an adult to assist in fixing the bicycle or walking back to school. If you are too far away, and no one can easily fix the bicycle, you may need to arrange a ride.
- ☐ What happens if a student has a fall, and has a cut needing attention? If the cut is minor, can an adult skilled in first aid deal with the situation and return to school with the student?
- ☐ How would you deal with a more serious fall or crash in which emergency services are needed?

Keep in mind that, although it is good to be prepared, there is only a slim chance that you would need to use your emergency plan.

Lesson Script

GET OUT & CHECK EQUIPMENT – 3 minutes

Have the students get their bicycles and line up in their bicycle teams.

When the students are ready, have them do the Eyes Ears Mouth test for their helmets, and the *ABC Bike Quick Check* for their bicycles. Have them check clothing for light, bright and tight.

INTRODUCE THE RIDE – 2 minutes

Explain: On the bicycle field trip, we will follow all of the rules of the road, and put into practice all of the lessons we have learned in this unit. When you have ridden with adults before, you may have followed the adults through intersections, with the adults making the decisions.

Today, you are the ones driving. Each student will make his or her own decision – just as each motorist drives his or her own car. When we get to intersections, each bicyclist will take his or her turn, and decide when it is safe to go.

When we arrive at more complicated sections of the ride, we may stop, pull over, and discuss the best approach before we ride. When we stop, get completely off the road. Adult ride leaders should also get completely off the road.

As we ride together, leave at least two bicycle-lengths between you and the bicyclist in front of you. When we are going downhill, you may need to use your brakes gently to keep from getting too close to the rider in front of you. Remember that there may be road hazards that you cannot see if there is someone in front of you. As a courtesy, point out road hazards to the bicyclist behind you, as long as you can do so without swerving.

We will ride single file; no passing.

BICYCLE FIELD TRIP – 25 minutes (or longer, as time permits)

Activity: Ride the route, including a snack break, if desired. Return to school and put the bikes away.

VARIATIONS ON THE CURRICULUM

Substitution for Bicycle Field Trip

If your school's location prohibits a bicycle field trip, you may instead do a bicycle skills course with your students. This is the bicycle equivalent of an obstacle course. Set up your athletic field with a skills course including straight riding, look back drill station, and several mock intersections, as included in lessons 2-4. Have the students without bicycles act as cars, traffic controllers, and skill monitors. Have each student go through the course at moderate pace, and then again at speed. Switch roles so that all students get a turn with the bicycles.

Teaching the Material as a Bicycle Skills Day

A Bicycle Skills Day essentially concentrates Lessons 1-4 into a half-day event with multiple "stations" and is appropriate all elementary grades (K-6). This type of event is also called a "Bicycle Rodeo" or "Bicycle Safety Fair." Skills Days that are held on weekends or as optional events after school typically attract grades K-3 to participate. However, the stations can be made more challenging for upper grades and are very appropriate for Grades 4-6.

Doing a Bicycle Skills Day during school time, instead of on a weekend, increases the number of students who are reached with the material. You will reach all students, across socio-economic backgrounds, and you won't be competing with other extracurricular activities.

You will need additional adult volunteers to help with the event. You could also choose to engage upper elementary grades (Grades 5-6) in running the event for the younger classes. Have the students who assist with the course take turns doing the course as a "trial run" before you welcome the younger students to participate. This gives your helpers practice with the course, and they also get to learn the material!

See the Vermont Safe Kids/ Vermont Bicycle & Pedestrian Coalition's binder "Teaching at a Bicycle Safety Fair" and [Guide to Bicycle Rodeos](#) by John Williams and Dan Burden. Below is a cross-reference of how this Guide corresponds to the *BikeSmart On-Bike* curriculum:

<u>BikeSmart On-Bike</u>	<u>Guide to Bicycle Rodeos</u>
Lesson 1: Helmets	Helmet Fit Station
Lesson 1: Bright & Tight / Clothing	Seeing and Being Seen
Lesson 1: ABC Bike Quick Check	Bike Shop
Lesson 2: Smooth Starts, Power Pedal	(included in Demon Driveway)
Lesson 2: Braking	(n/a)
Lesson 2: Look Back, Lifesaver	Who's There
Lesson 3: Home Intersection	Demon Driveway
Lesson 3: T-Intersection	Crazy Crossroads
Lesson 3: 4-way Stop	(n/a)
Lesson 3: Traffic Light	(n/a)
Lesson 4: Riding with Road Hazards	Dodge 'Em Drive
Lesson 4: Rock Dodge	Rock Dodge
Lesson 4: Quick Stop	Panic Stop
Lesson 4: Slow Race	Slow Race

INTRODUCTION TO BIKESMART ON-BIKE!

Dear Parents and Guardians,

In a few weeks, our school will provide *BikeSmart On-Bike* safety education lessons. This program was developed through the Vermont Safe Routes to School Program to teach children bicycle handling and traffic safety skills.

Bicycles are legal vehicles under Vermont state law. Bicycle safety is a first step in learning to operate a vehicle safely on the roadway.

We are contacting you at this time, to find out if your child will be able to bring his or her bicycle to school to use during the lessons. Students will share bicycles during the instruction in a supervised setting. Please return the enclosed equipment survey to indicate your ability to bring a bicycle to school, and your willingness to share with other students.

All students will also be asked to bring a helmet to school. If you do not currently have a bicycle helmet, the school may be participating in a low-cost helmet purchase. Up to 90% of child bicyclist fatalities could be prevented by wearing a properly fitted helmet.

Before participating in the *BikeSmart On-Bike* curriculum, please use the enclosures to help your child prepare:

- ☐ *Make sure your child's helmet is sized and fitted correctly using Fitting a Bicycle Helmet.*
- ☐ *Check your child's bicycle using the enclosed ABC Bike Quick Check worksheet.*
- ☐ *Plan with your child to wear bicycling-appropriate clothing that is light, bright and tight.*

If your child will ride his or her bicycle to school to participate in the *BikeSmart On-Bike* lessons, we encourage you to accompany your child to school, or ensure that he or she has a good route and adequate safety skills for the traffic along this route.

We look forward to your child's participation in a successful bicycle safety program in our school. Thank you for your support.

Sincerely,

Enclosures: Parent Survey; Fitting a Bicycle Helmet; ABC Bike Quick Check; Helmet order form (optional)



This program is made possible with Safe Routes to School funding from the Vermont Agency of Transportation and is based on the curriculum *BikeSmart On-Bike* developed by the Center for Health & Learning.

BikeSmart On-Bike: Parent / Guardian Letter #1

BICYCLE EQUIPMENT SURVEY

For school / educator to complete before sending home:

Weather permitting, *BikeSmart On-Bike* instruction dates will be as below:

Lesson 1

Lesson 2

Lesson 3

Lesson 4

Lesson 5

Lesson 6 (Fieldtrip)

To be filled out by parent or guardian, and returned to school.

Please return to school by _____ (date)

Student's Name: _____ Grade: _____

Student's Classroom Teacher: _____

The *BikeSmart On-Bike* lessons will be taught as a series. As the school does not have bicycles for instruction, our ability to complete this unit is dependent on students' ability to bring and share bicycles.

BICYCLES

Can your child bring a bicycle to school on the dates above? ☐ Yes ☐ No

May other students borrow your child's bicycle during the school instruction? ☐ Yes ☐ No

HELMET

Does your child have a bicycle helmet that fits? ☐ Yes ☐ No

BICYCLE FIELDTRIP – PARENT PARTICIPATION

Our unit may include a bicycle field trip on local streets. Would you be interested in joining a bicycle field trip for one day only? You would be required to bring your bicycle and helmet and ride with the class.

☐ Yes ☐ No ☐ Not sure ☐ Depends on date

FITTING A BICYCLE HELMET

If your helmet fails the Eyes, Ears, Mouth test, this is how to adjust the fit:

1. Unbuckle the chinstrap, take the helmet off, and open up the plastic support system.

Not all helmets have a plastic support system. If your helmet has one, it will look like a large ring of plastic around the back of your helmet, with an adjustable dial or buckles at the rear.

2. Place your helmet level on your head, so that it would pass the "Eyes" test.

You should be able to see the brim of your helmet when you look up.

3. Check that the helmet is the right size for your head.

If the helmet sits up on top of your head, it is too small and you need a new helmet! If the helmet is very loose on your head, your helmet is too big.

4. If you have a plastic support system at the back of your helmet, tighten it.

Make sure your helmet is still level on your forehead. The support system should be snug but not too tight.



5. Adjust the ear straps to form a Y under your ears.

Work with a buddy to do this, as it is hard to do this yourself. There are plastic sliders on these straps. If the slider has a buckle, loosen it to adjust the straps. Adjust the slider on both straps to form a "V" shape under, and slightly in front of, the ears. Keep your helmet level on your head while you do this adjustment. Lock the slider if possible.



6. Adjust the chin strap so that it is snug under your chin.

Buckle your chin strap. Adjust how the strap goes through the buckle until it is snug, so that no more than one or two fingers fit under the strap. You may need to buckle and unbuckle your helmet several times as you adjust the strap and check the fit.



7. Do the Eyes, Ears, Mouth test again to confirm that your helmet now fits properly!

Illustrations from the National Traffic Highway Safety Administration.

Activity sheet from *BikeSmart On-Bike* by Becka Roelf © Center for Health & Learning, 2008.
Developed for the Vermont Safe Routes to School Program.

ABC BIKE QUICK CHECK

A is for *air pressure*

Squeeze the tires to check for low air pressure.

____ Does the tire feel firm?

B is for *brakes*.

Squeeze each brake lever. (Note: coaster brakes do not need to be checked.)

____ Does the wheel stop quickly?

____ Does the brake lever hit the handlebar?

C is for *chain*.

____ Is the chain on track?

____ Is there anything caught in the chain?

____ Is the chain clean and lubed?

QUICK is for *Quick Releases*.

Check the quick releases on the front and rear hub and on the seatpost.

____ Are they in the closed position?

SPIN is for *spinning the wheels*.

Spin the wheels.

____ Do they spin smoothly?

____ Do they have any broken spokes?

OTHER:

Check reflectors and lights.

____ Are they clean, working and visible?

*If you cannot check **off** every item, ask a knowledgeable adult for assistance, or bring your bike to a repair shop.*

BIKESMART ON-BIKE

Dear Parents and Guardians,

Our school is currently providing *BikeSmart On-Bike* safety education lessons. This program was developed through the Vermont Safe Routes to School Program to teach children bicycle handling and traffic safety skills.

As part of this module, we plan a short bicycle ride with the students on local roads. In order for your child to participate, we ask that you return the enclosed permission slip to the school.

Bicycles are legal vehicles under Vermont state law. Bicycle safety is a first step in learning to operate a vehicle safely on the roadway.

The *BikeSmart On-Bike* curriculum focuses on these critical concepts and skills for bicycle safety. We encourage you to discuss these concepts and skills with your child:

- *Ask them where they should ride on the roadway with regard to other traffic.*
- *Practice having them look back over the shoulder for traffic, without swerving.*
- *Practice stopping at the end of the driveway and at stop signs, looking for traffic, and determining when it is safe to go.*
- *Practice making left-hand turns on neighborhood streets or busier roadways, as appropriate to age.*
- *Ask them to explain how stop signs and traffic signals control the flow of traffic.*
- *Map out some bicycle-friendly routes to destinations such as: school, recreation fields, library, general store, etc. Talk through how to approach the traffic patterns and intersections on the way to each of these destinations, and practice riding them at low-traffic times of the day.*

Bicycling is healthy for your child. Biking cuts down on pollution and vehicle traffic, and is also fun! Thank you for your support.

Sincerely,

Enclosure: Bicycle Fieldtrip Permission Slip

This program is made possible with Safe Routes to School funding from the Vermont Agency of Transportation and is based on the curriculum *BikeSmart On-Bike* developed by the Center for Health & Learning.



BICYCLE TEAMS LOG

Keep track of who is sharing whose bicycle.

Class: _____

Bike Owner: _____ Bike color / type: _____

Team Mbr #2: _____

Team Mbr #3: _____

Bike Owner: _____ Bike color / type: _____

Team Mbr #2: _____

Team Mbr #3: _____

Bike Owner: _____ Bike color / type: _____

Team Mbr #2: _____

Team Mbr #3: _____

Bike Owner: _____ Bike color / type: _____

Team Mbr #2: _____

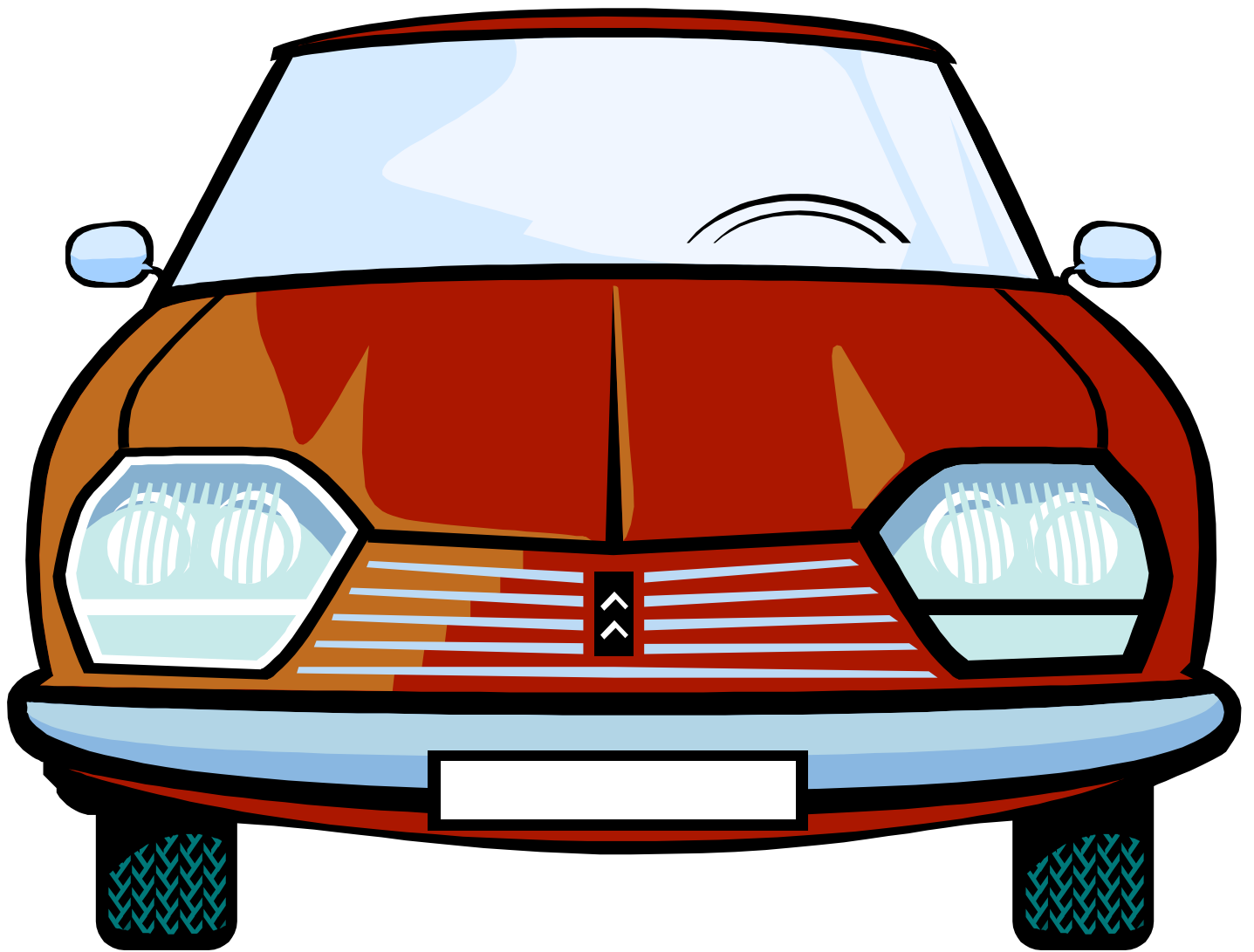
Team Mbr #3: _____

Bike Owner: _____ Bike color / type: _____

Team Mbr #2: _____

Team Mbr #3: _____

BikeSmart On-Bike activity sheet developed by the Center for Health & Learning for the
Vermont Safe Routes to School Program.



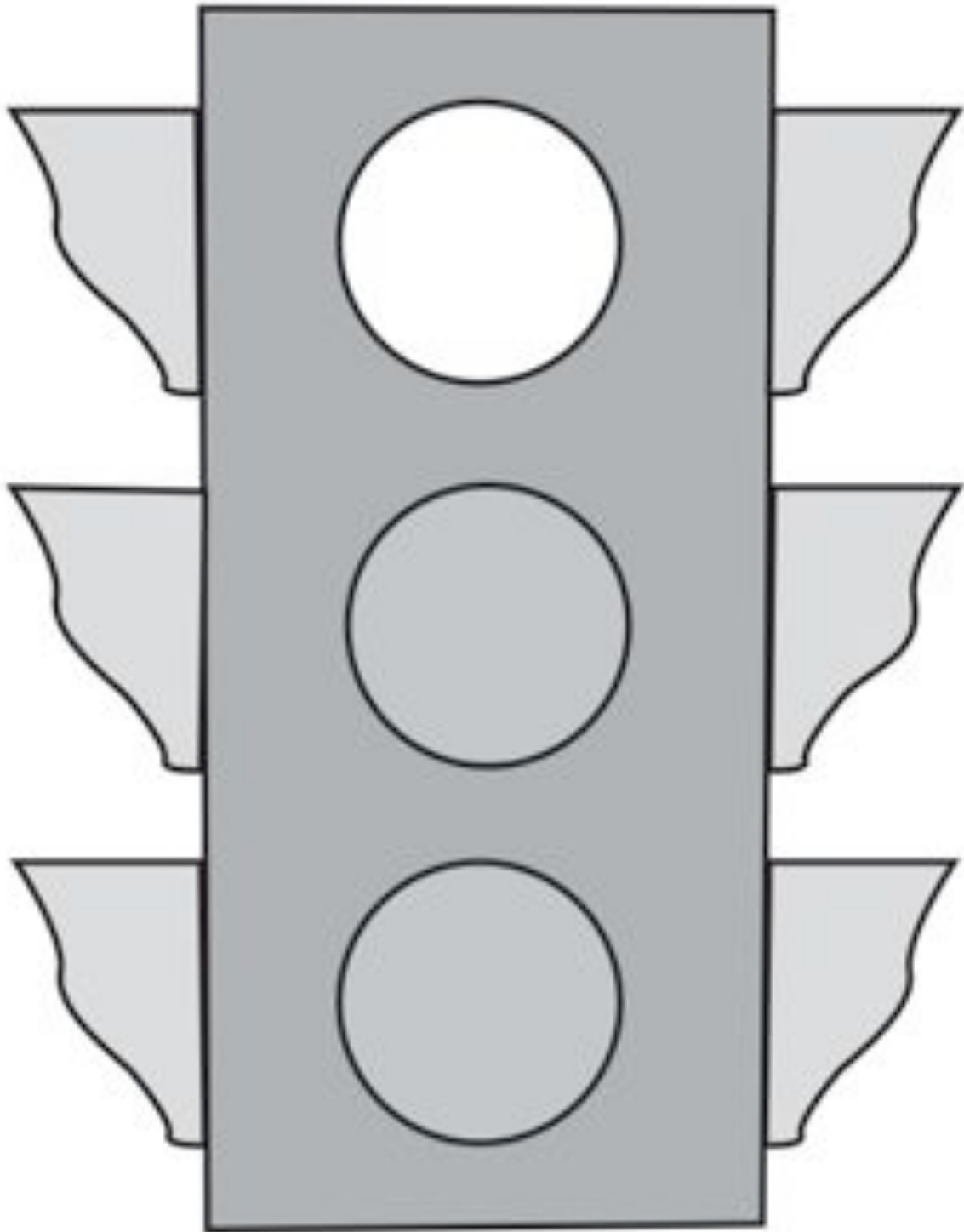
Make 6-10 copies, depending on the size of your class. Full-color, laminated cars, trucks, and buses are available for purchase from the Center for Health & Learning: info@healthandlearning.org

BikeSmart On-Bike instruction prop.



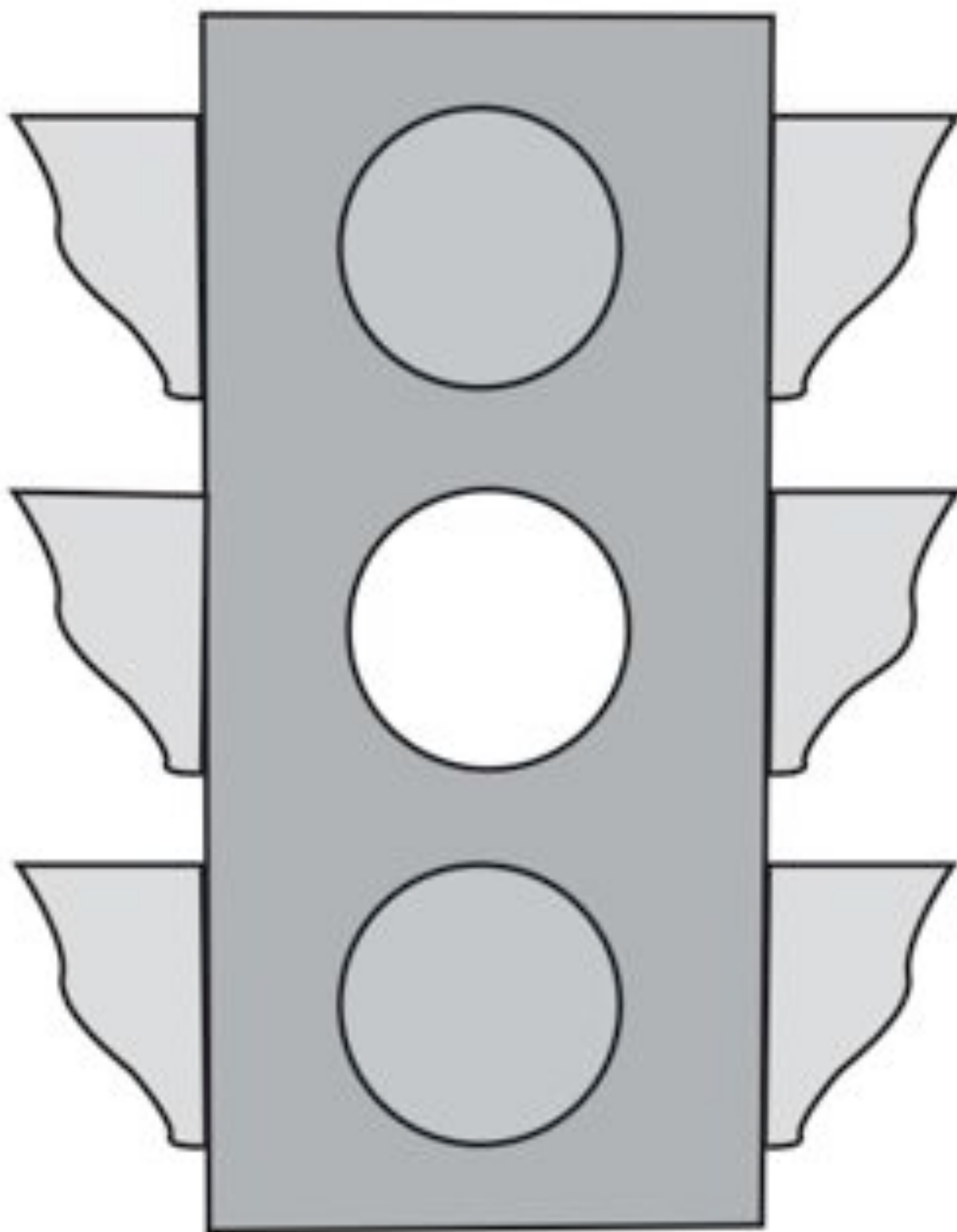
Color the stop sign red with a marker or crayon, or print out a color version from the Internet.
Make 3 or 4 copies, depending whether you will create a 3- or 4-way intersection in Lessons #3 & #5.

BikeSmart On-Bike instruction prop.



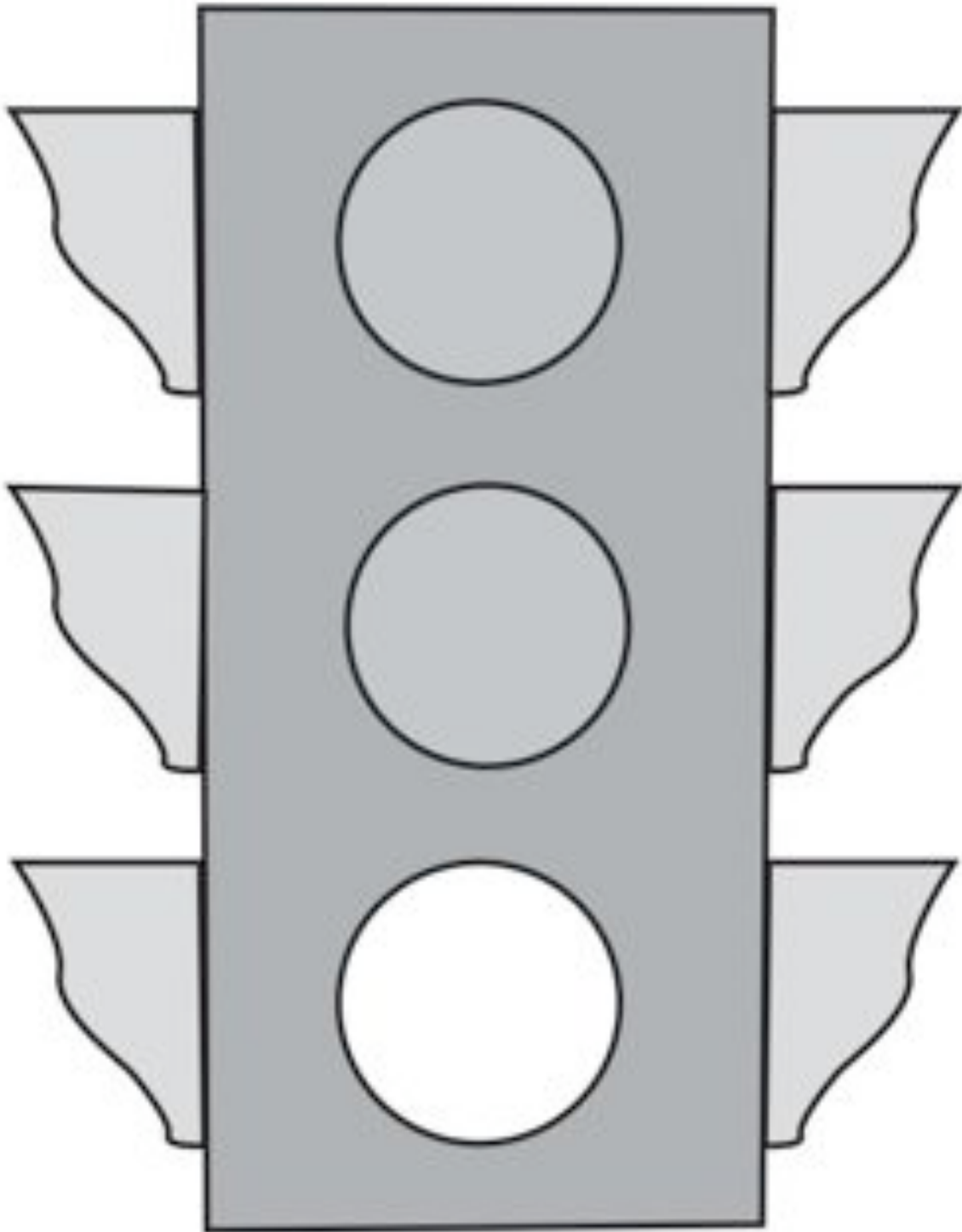
Color the top light red.

BikeSmart On-Bike instruction prop.



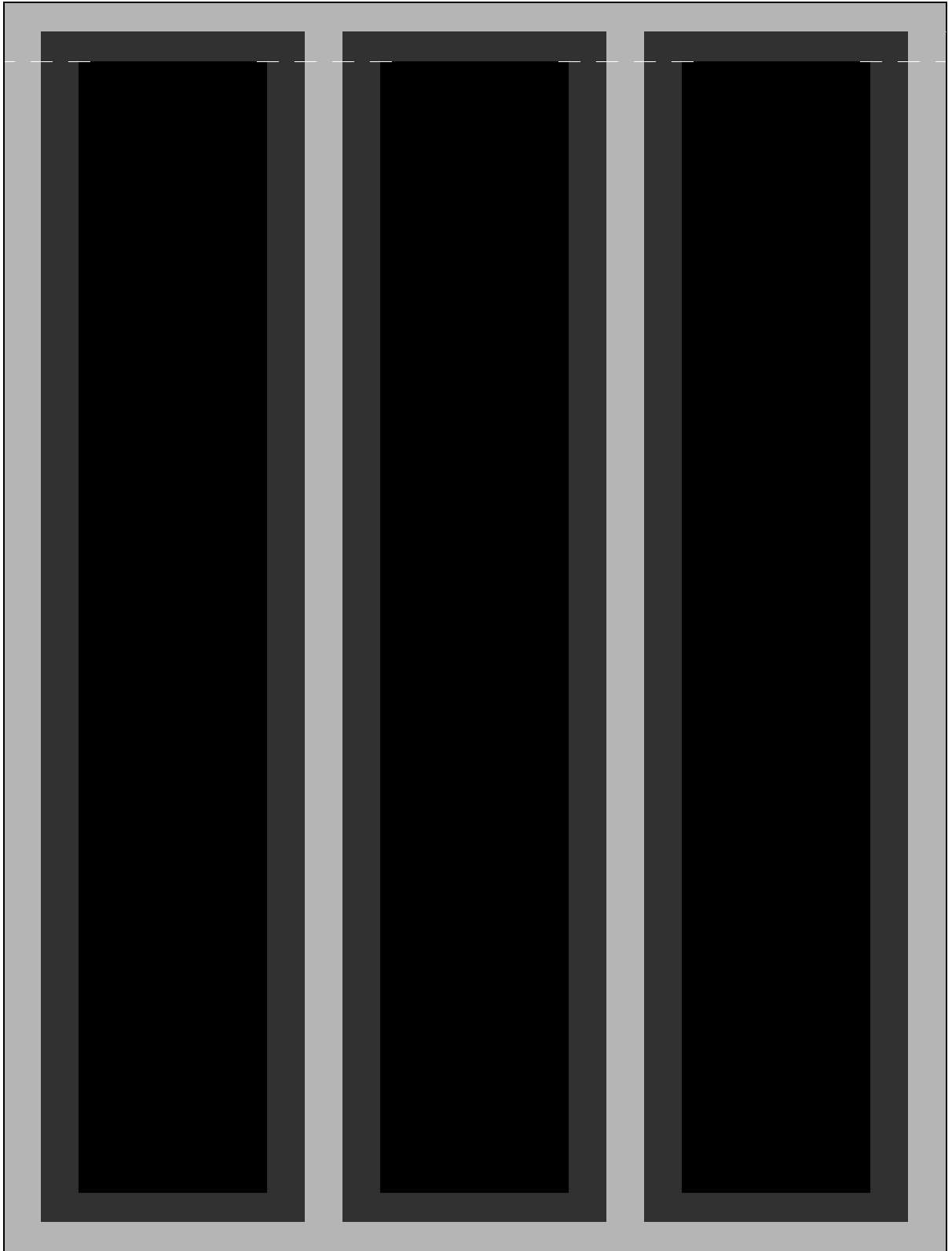
Color the middle light yellow.

BikeSmart On-Bike instruction prop.



Color the bottom light green.

BikeSmart On-Bike instruction prop.



Slots width is to-scale with a real drain grate.

BikeSmart On-Bike instruction prop.

BICYCLE FIELD TRIP LEADER INFORMATION

This information is for parent or community volunteers who join the *BikeSmart On-Bike* class for a bicycle ride. You will be riding with students who have recently received instruction in bicycle safety. We will be riding on the right side of the road and obeying all traffic laws. The students should be encouraged to look and make their own decisions about traffic. Your role is to supervise but not to shepherd.

Please plan to be at the school, ready to ride, 5 minutes before the ride starts.

YOUR EQUIPMENT

- Bring your bicycle in good working condition and your helmet.
- Check your quick releases especially if you have removed a wheel to transport your bike.
- Remember to dress in bright or light clothing, modeling clothing that a typical child bicyclist might wear. This is a short ride so you do not need "bike clothes."

COMMUNICATION

- Introduce yourself and learn the names of the students in your sub-group.
- Be clear and specific when giving directions.
- Give responsibility to students by rotating ride leaders.
- If problems occur or a student is being difficult, discuss problems individually. State they will not be allowed to ride again if they do not follow directions.
- Remind students to be safe and predictable riders.

PRE-RIDE

- Everyone will do a helmet and bicycle safety check.
- Remind students to obey all traffic rules and signals and to ride in a single file, passing is not allowed.
- State that each person must think and act for himself or herself; not just follow the leader.
- Remind students to stop for yellow lights.

RIDING TECHNIQUES

- Position yourself at the front or back of the group.
- Give clear and loud verbal warnings and directions, encourage students to be verbal.
- Ride on the right side of the road with "space cushion" for opening car doors or other obstacles.
- Avoid riding on sidewalks and making illegal maneuvers.
- Left turn – look back for traffic, give left turn signal and move to the left side of lane, give signal again at intersection, watch for oncoming traffic and turn back into the right side on the adjacent street.
- Stop signs and red lights – a) group stops in a single file; b) ride leader (you) rides to front of group; c) leader coaches each rider individually through intersection; d) leader instructs first student to wait ahead while the remaining riders cross the intersection. Be specific (e.g. have student leader wait near a parked car, driveway, mailbox, or tree).
- Stop your ride and walk the bikes if you feel uncomfortable with the riding conditions or the group is out of control.
- Stick to the same route as the overall group leader.

*Ride leader information adapted from the Bicycle Transportation Alliance of Oregon, as a BikeSmart On-Bike activity sheet.
Developed by the Center for Health & Learning for the Vermont Safe Routes to School Program.*

NOTES ON STUDENT BICYCLE MAINTENANCE

If you can arrange for a local bike shop mechanic to come to school at the start of the school day when your students are bringing bicycles for *BikeSmart On-Bike*, the mechanic may help you to deal with any major problems. Bike mechanics will usually bring a portable repair stand; you could set this up near your school bike rack in the morning.

If you feel comfortable with basic bicycle maintenance, you may wish to also bring the following tools to class (especially the first class).

- Chain lube
- Penetrating oil (Liquid Wrench)
- Set of adjustable wrenches (large and small)
- Allen wrench set (also called hex wrenches)
- Screwdrivers, Phillips and flathead

Air: The most common problem you will find with the students' bicycles is low air pressure in the tires. If the air pressure is just slightly low, allow students to use the bicycle without taking the time to pump up tires. Make the bicycle floor pump available before / after class or before / after school.

Brakes: Failing brakes, on the other hand, are a serious problem. If brakes are not easily adjusted to work properly, or if you do not feel comfortable with making a bicycle repair, you will need to forgo using that bicycle. Refer the student to a bike shop.

Chain / Crank: Some chain lube, and/or liquid wrench (penetrating oil, frees rusted parts) may be all that's needed to get a stuck chain back in operation. When you test the cranks, make sure that the crank-arms are securely fastened to the bicycle. If there is just a little wobble in the crank arms, it is probably still OK to ride. If there is significant play, or if the bottom bracket feels very "gritty", refer the student to a bike shop.

Quick: Check the quick releases on the wheels and seat post.

Spin: If a wheel is only slightly out of true, you may still use the bicycle. A brake might rub slightly, which is not too big a deal. See if the student can have it fixed before the bicycle field trip. If a wheel is very out of true and the brake rubs severely, you will again have to refer the student to the bike shop.

Stem Bolt / Handlebar Steering: If the handlebars are very crooked with regard to the direction of the front wheel, or if the stem bolt is loose so that the wheel does not turn when the handlebars turn, do not use the bike in class. If you feel comfortable tightening a handlebar bolt, this is an easy repair. If not, refer the student to a bike shop.

SUMMARY OF BICYCLE-RELATED LAWS IN VERMONT

VERMONT STATUTES

SAME RIGHTS & RESPONSIBILITIES AS MOTOR

VEHICLES. “Every person riding a bicycle is granted all of the rights and is subject to all of the duties applicable to operators of vehicles, except as to those provisions which by their very nature can have no application.” **23 VSA § 1136(c)**

OBEYING TRAFFIC SIGNALS. The above law means that bicyclists must obey traffic lights and signs.

RIDE ON THE RIGHT. “A person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable, exercising due care when passing a standing vehicle or one proceeding in the same direction.” **23 VSA § 1139(a)**



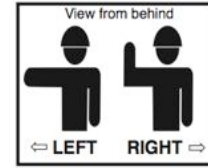
RIDE ON THE RIGHT.
Wrong-way riding is
a leading cause of
bicyclist crashes.

TWO ABREAST. “Persons riding bicycles upon a roadway may not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles or except as otherwise permitted by the commissioner of public safety in connection with a public sporting event... Persons riding two abreast shall not impede the normal and reasonable movement of traffic and, on a laned roadway, shall ride within a single lane.” **23 VSA § 1139(b)**

NOT REQUIRED TO USE BIKE PATH. A law on the books that required bicyclists to use bike paths was repealed in 2004. As a result, bicyclists are permitted to ride on the road, even when there is an adjacent path.

USING LIGHTS AT NIGHT. “No person may operate a bicycle at nighttime unless it is equipped with a lamp on the front, which emits a white light visible from a distance of at least five hundred feet to the front, and with a red reflector on the rear, which shall be visible at least three hundred feet to the rear when directly in front of lawful upper beams of head lamps on a motor vehicle. Lamps emitting red lights visible to the rear may be used in addition to the red reflector.” **23 VSA § 1141**

HAND SIGNALS. “All signals to indicate change of speed or direction, when given by hand, shall be given from the left side of the vehicle and in the following manner: (1) Left turn. - Hand and arm extended horizontally. (2) Right turn. - Hand and arm extended upward. (3) Stop or decrease speed. - Hand and arm extended downward.” **23 VSA § 1065(a)**



RIDING ON ROAD SHOULDERS. While it is not legal to drive on a shoulder, 19 VSA 2301(3) grants bicyclists permission to ride on shoulders. This statute states that “paved road shoulders are considered bicycle lanes”; which the statute defines as for preferential use by bicycles.

RIDING THROUGH CROSSWALKS. Bicyclists do not have the right-of-way in crosswalks under state law. If you want the legal right-of-way at a crosswalk, you must dismount your bicycle to become a pedestrian.

FINES. Per 23 VSA 1141(a), bicyclists may be subject to fines of \$25 plus fees (total \$55) for bicycle-specific laws. Fines are the same as for motorists for general traffic laws: around \$200 for running a red light, for example. Points may be given on your driving license, even if you are riding your bike.

THE LAWS ALSO APPLY TO CHILDREN. “The parent of any child and the guardian of any ward may not authorize or knowingly permit any such child or ward to violate any of the provisions of this subchapter.” **23 VSA § 1136 (a)**

RIDING ON SIDEWALKS

Sidewalk riding in Vermont is usually regulated at the local level. Several municipalities have ordinances prohibiting sidewalk riding in the core downtown or village area. These ordinances are for the protection of pedestrians, particularly the elderly and others who are unstable on their feet.

Some local ordinances have exceptions based on age, with young children permitted to ride on the sidewalk.

Check with your municipality for any local ordinances on sidewalk riding. Even where local ordinances permit riding on the sidewalk, it is better to ride on the road. *BikeSmart On-Bike* promotes traffic safety skills to ride on the road.

You may decide that for some roads, it is still preferable to ride on the sidewalk. When riding on the sidewalk, yield to pedestrians, ride slowly and give warning when passing pedestrians. When possible, ride in the same direction as traffic (on the sidewalk on the right side of the road), and use considerable caution at all intersections including driveways.

Bicyclists do not have the legal right-of-way in crosswalks, as explained above. Bicyclists riding on the sidewalk are even more likely to be involved in a crash due to turning motorists not seeing you, and turning across your path.

This background information is provided for *BikeSmart On-Bike* instructor reference.
Adapted from materials by Becka Roolf, Going Green L3C.

PARTICIPATION RECORD & CURRICULUM FEEDBACK

BikeSmart On-Bike

Submit this form within two weeks of on-bike instruction.

Date submitting form: _____

Pedestrian and Bicycle Safety Educator: _____

Phone #: _____ Email: _____

Relationship to School: _____

School Name & Address: _____

Did you use student bikes from home? Yes___ No___ Explain:

Did the school provide bikes? Yes___ No___ Explain:

What percentage of students had bikes for your lessons? ___ % (estimated)

How did your students respond to the unit?

Curriculum feedback – What worked well? What could be improved? Please explain on the reverse side.

Please do one entry for each group of students (each classroom or after-school group).

Group name (i.e., Mrs. Smith's class, ASP group, etc.): _____

Grade(s) taught: _____ Dates taught: _____

Number of students in this group: _____

Please fill out the questions for the appropriate format:

<input type="checkbox"/> P.E. Class – series of lessons	<input type="checkbox"/> After School – series of lessons	<input type="checkbox"/> Safety Fair / Skills Day
<p>Which lessons did you implement?</p> <p><input type="checkbox"/> #1: Ready to Ride</p> <p><input type="checkbox"/> #2: Stop & Go</p> <p><input type="checkbox"/> #3: Bike Driving at Intersections</p> <p><input type="checkbox"/> #4: Bike Handling Skills</p> <p><input type="checkbox"/> #5: Preparing for Fieldtrip</p> <p><input type="checkbox"/> #6: Bicycle Field Trip</p> <p>How long are your class periods? _____ # minutes</p> <p>Did you change the order / content of lessons and if so, how? Please explain on the reverse side.</p>	<p>Which lessons did you implement?</p> <p><input type="checkbox"/> #1: Ready to Ride</p> <p><input type="checkbox"/> #2: Stop & Go</p> <p><input type="checkbox"/> #3: Bike Driving at Intersections</p> <p><input type="checkbox"/> #4: Bike Handling Skills</p> <p><input type="checkbox"/> #5: Preparing for Fieldtrip</p> <p><input type="checkbox"/> #6: Bicycle Field Trip</p> <p>How long was each lesson? _____ # minutes</p> <p>Did you change the order / content of lessons and if so, how? Please explain on the reverse side.</p>	<p>How long was your skills day? _____ hours _____ minutes</p> <p>Which skills stations did you use?</p> <p><input type="checkbox"/> #1: Bike Shop</p> <p><input type="checkbox"/> #1a: Parents' Orientation</p> <p><input type="checkbox"/> #2: Seeing and being seen</p> <p><input type="checkbox"/> #3: Chaos Corners</p> <p><input type="checkbox"/> #4: Driveway</p> <p><input type="checkbox"/> #5: Crossroads / Intersections</p> <p><input type="checkbox"/> #6: Who's there / Look-back</p> <p><input type="checkbox"/> #7: Rock dodge</p> <p><input type="checkbox"/> #8: Dodge 'em Drive / Road Hazards</p> <p><input type="checkbox"/> #9: Slow Race</p> <p>How many minutes did each class participate? _____</p>

ASSESSMENT RUBRIC

These skills may be assessed during the indicated unit, or in Lessons 5 and 6, as you prefer.

Starting out on the Bike (Lesson #2)

• Pedal position • Smooth start • Lack of wobble or swerve • Low gear to start

Outstanding	Good / Satisfactory	Needs Improvement
<p>Student starts with pedal in power-position and moves forward smoothly without wobbling or swerving.</p> <p><i>Grades 6-8: On a multi-gear bicycle, the bicycle is in a low gear for starting.</i></p>	<p>Student starts with pedal in power position, but wobbles or swerves when starting – or – student starts with pedal not in power position, but still manages to start without much wobble.</p> <p><i>Grades 6-8: On a multi-gear bicycle, the bicycle is not in a low gear for starting, leading to a slow but smooth start.</i></p>	<p>Student pushes the ground with his or her feet, wobbles considerably, or falls off the bicycle while starting to move forward from a stop.</p> <p><i>Grades 6-8: On a multi-gear bicycle, the bicycle is in such a high gear that the student cannot get the bicycle going.</i></p>

Stopping (Lesson #2)

• Downshifting • Signaling • Braking • Controlled stop • Pedal position

Outstanding	Good / Satisfactory	Needs Improvement
<p>Student comes smoothly to a stop using both brakes. Student signals or calls out "stopping" if another bicyclist is behind them.</p> <p>When stopped, the student leans the bicycle to the side and puts a foot down.</p> <p><i>Grades 6-8: On a multi-gear bicycle, the student downshifts in preparation for restarting.</i></p>	<p>Student comes smoothly to a stop using both brakes. Student signals or calls out "stopping" if another bicyclist is behind them.</p> <p>When stopped, the student leans the bicycle to the side and puts a foot down.</p> <p><i>Grades 6-8: On a multi-gear bicycle, the student neglects to downshift before stopping.</i></p>	<p>Student swerves while stopping, skids out, or falls over. Student does not signal even when another bicyclist is directly behind them.</p> <p>Student does not come to a complete stop, or tries to avoid putting a foot down.</p> <p><i>Grades 6-8: On a multi-gear bicycle, student stops with the bicycle in a very high gear, making restarting very difficult.</i></p>

Looking over the Shoulder (Lesson #2)

• Straight riding / Minimal swerving • Look over shoulder • Accurate assessment

Outstanding	Good / Satisfactory	Needs Improvement
<p>Student rides in a straight line while looking over the shoulder, with only a few inches of swerve.</p> <p>Student correctly identifies the simulated situation behind the bicycle – either traffic or the number of arms held up.</p>	<p>Student rides in a straight line, but swerves a foot or two when looking over the shoulder.</p> <p>Student correctly identifies the simulated situation behind the bicycle – either traffic or the number of arms held up.</p>	<p>Student loses control or swerves three feet or more when looking over the shoulder.</p> <p>Student misses traffic behind the bicycle, or is incorrect in identifying the number of arms held up.</p>

Driveway Exit (Lesson #3)		
• Stopping • Looking for traffic • Signaling • Pedal position		
Outstanding	Good	Needs Improvement
Student comes to a stop at the end of the driveway and looks both ways before proceeding. Student uses power-pedal position, gives the correct hand signal, and rides forward only when the way is clear.	Student slows down at the end of the driveway and looks both ways before proceeding. Student gives the correct hand signal and rides forward only when the way is clear.	Student rides out of the driveway without looking, or at a high rate of speed with a cursory look. Student rides forward when traffic is present. Student does not signal.
Traffic at Intersections (Lesson #3)		
• Stopping • Communicating with drivers • Signaling • Taking turn for right of way NOTE: This assessment may be used at any complexity of intersection. Please indicate type of intersection on your assessment record. Use more difficult intersections for upper elementary / middle school.		
Outstanding	Good / Satisfactory	Needs Improvement
Student obeys traffic signs/signals at the intersection. Student communicates with other drivers with hand signals and eye contact. Student rides in the correct lane position for the intended turn. Student knows when it is his or her turn and confidently uses the right of way to move forward to his or her destination.	Student stops at a stop sign and waits for all traffic to leave the intersection before proceeding. Student gets off the bicycle and navigates the intersection in the crosswalks following pedestrian rules. Student hesitates and does not seem to know when it is his or her turn to go.	Student fails to obey traffic signs/signals – running a red light or stop sign. Student does not use hand signals when turning. Student goes when it is not his or her turn, and without communication from drivers. Student loses control or narrowly avoids a crash.
Turning Left (Lesson #3)		
• Looking back • Signaling • Lane positioning • Obeying traffic sign/signal • Completing the turn		
Outstanding	Good / Satisfactory	Needs Improvement
Student looks back over shoulder, signals if the way is clear, looks back again, and moves left in the lane. Student approaches the intersection from the left-hand side of the lane. Student obeys traffic sign or signal and then turns left, to end up in the right side of the lane at the end of the turn, without steering corrections.	Student looks back over shoulder only once. If the way is clear, signals and moves left in the lane as a single step. Student turns left from the left side of the lane; obeys traffic sign/signal, and turns – but needs steering correction at the end of the turn. –Or – Student approaches the left turn as a pedestrian, by riding straight through the intersection, stopping the bike at the far crosswalk, and	Student does not look back before moving left in the lane. Student turns left from the right side of the street. Student cuts the corner and ends up in the wrong lane at the end of the turn.

	walking across the street.	
Avoiding Road Hazards (Lesson #4)		
• Advance planning • Looking ahead • Not striking the hazard • Not losing control		
Outstanding	Good / Satisfactory	Needs Improvement
<p>Student avoids the hazard altogether through lane positioning – looks back over the shoulder for traffic, signals, and moves to avoid the hazard.</p> <p>If traffic is present, the student's preparation for the hazard is far enough in advance that the student can merge into the traffic lane without considerable reduction of bicycle speed.</p> <p>Student's travel line is smooth and predictable: the student plans in advance to avoid the hazard.</p>	<p>Student rides fairly close to the hazard and then avoids the hazard by looking back and changing lane position less than 15' from the hazard, or by using an emergency maneuver (rock dodge, quick stop) to avoid striking the hazard.</p> <p>If traffic is present, the student slows or stops to avoid hitting the hazard or going into traffic.</p> <p>Student's travel line is toward the hazard with a fairly sharp corrective turn.</p>	<p>Student strikes the road hazard.</p> <p>Student loses control of the bicycle or swerves into the traffic lane.</p> <p>Student nearly stops in order to avoid the hazard.</p>
Quick Stop (Lesson #4)		
• Stopping quickly • Shift body weight • Recovering from skid • Not losing control		
Outstanding	Good / Satisfactory	Needs Improvement
<p>Student stops quickly without skidding. Student uses both brakes. Student shifts his or her body weight on the bicycle, so that the butt is extended back over the seat of the bicycle.</p>	<p>Student stops quickly with some skidding. Student uses both brakes, and shifts the body weight back on the bicycle slightly.</p>	<p>Student does not stop, or loses control of the bicycle. Student stops normally, without shifting the weight back toward the rear of the bicycle.</p>
Rock Dodge (Lesson #4)		
• Avoiding the rock • Riding straight • Not losing control		
Outstanding	Good / Satisfactory	Needs Improvement
<p>Student rides straight through the entry and exit lanes. Student turns the front wheel of the bike around the rock, and then snaps the wheel back the other direction. Student misses the rock with both front and rear wheels.</p>	<p>Student rides straight through the entry lane, but may slightly miss the exit lane. Student turns the front wheel of the bike around the rock, and then snaps the wheel back the other direction. Student misses the rock with the front wheel, but strikes it with the back wheel.</p>	<p>Student is unable to ride through the entry and exit lanes. Student strikes the rock with both wheels. Student misses the rock, but through conventional steering rather than through the rock dodge type of turn.</p>

Assessment rubric from *BikeSmart On-Bike* by Becka Roelf © Center for Health & Learning, 2008.
Developed for the Vermont Safe Routes to School Program.