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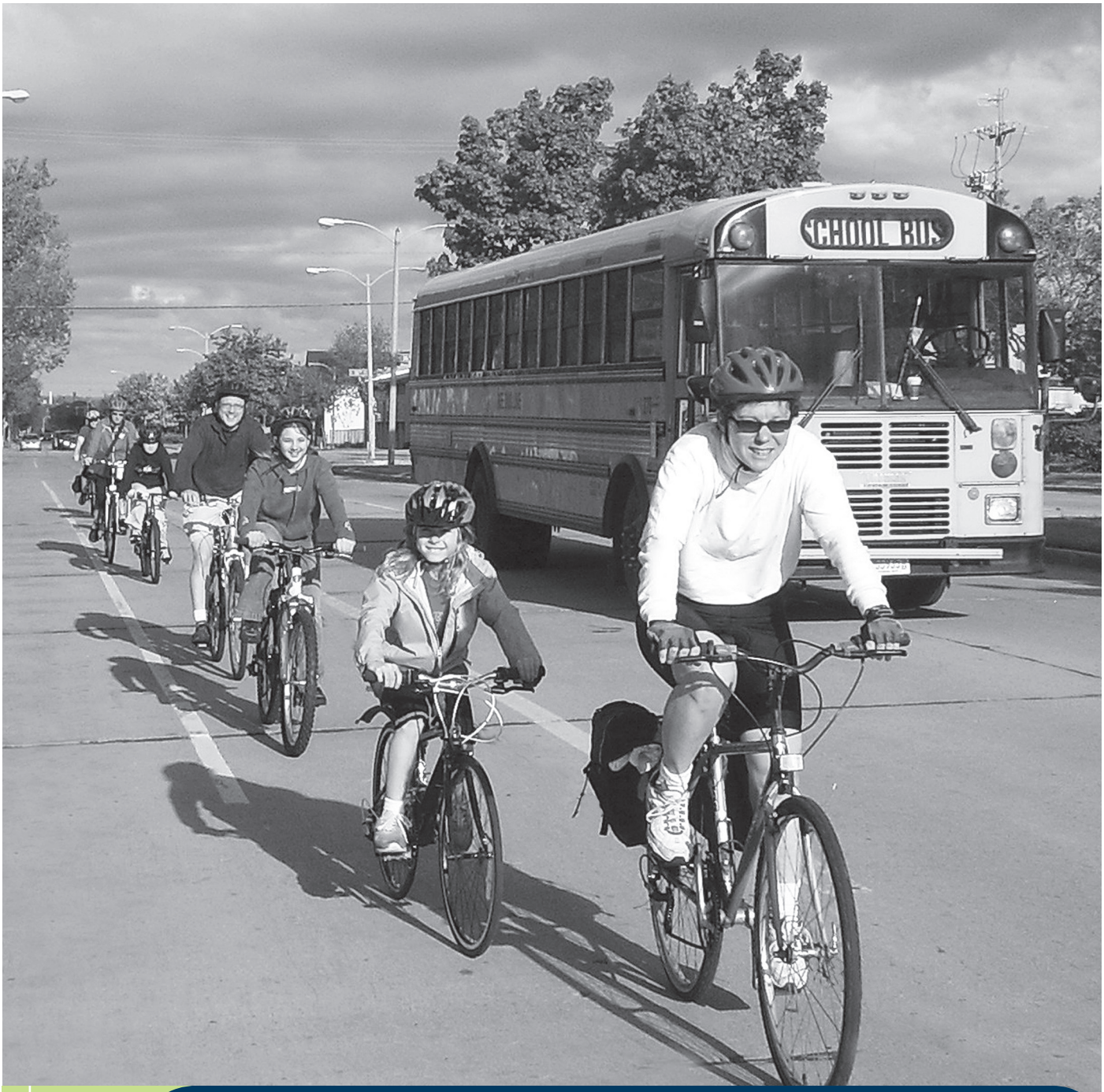
The League of American Bicyclists

This curriculum was written and developed by the League of American Bicyclists. The mission of the League is to promote bicycling for fun, fitness and transportation and work through advocacy and education for a bicycle-friendly America. The League does this by representing the interests of the nation's 57 million cyclists through the power of the League's current membership of 300,000 affiliated cyclists, including 25,000 individuals and 900 affiliated organizations.

For more information please visit www.bikeleague.org or contact the League of America Bicyclists at: 202.822.1333; bikeleague@bikeleague.org



SAFE ROUTES TO SCHOOL

TRAFFIC SAFETY PROGRAM

Welcome

The Safe Routes to School Traffic Safety Program is comprehensive 10-hour traffic safety education curriculum developed by the League of American Bicyclists (League). The program is geared for older elementary and middle school aged students.

This curriculum is a flexible and easy-to-use lesson plan format that is commonly taught in middle school aged school classrooms, or as an extracurricular program. The lessons are interactive, hands-on and fun. They work to build self-esteem, independence, and inculcate safe and active lifestyles among preadolescent youth. By middle school, children are typically seeking independence and are capable and motivated to travel; this curriculum provides the knowledge and experience framework so they can safely navigate traffic situations and identify safer bicycle and walking routes.

The 10 one-hour lessons are divided into three teaching levels with activities ranging from in-class activities to on-street walking trips and bicycle rides. Each successive teaching level covers bicycle and walking safety in greater depth, teaches more advanced concepts, and offers increased hands-on experiential learning. The League recommends teaching all 10 lessons in order to provide maximum on-bike and on-street traffic safety instruction.

Goals of the Curriculum

The primary goals of the League's Safe Routes to School Traffic Safety Program are:

1. Increase the safety of youth bicyclists and walkers.
2. Increase the number and frequency of children bicycling and walking.
3. Improve the lives of children by improving health, learning capacities, independence, and community conditions for bicycling and walking.

TEACHING LEVELS

1. **Level 1** – classroom learning including helmets, equipment, traffic rules, and laws;
2. **Level 2 –** walkabout and on-bike learning including playground bicycle riding and skill building on and near the school grounds
3. **Level 3 –** on-street bicycle riding that culminates in adult-supported on-street community bicycle rides.

Learning Objectives

The curriculum improves traffic safety and youth mobility by teaching walking safety, bicycling in traffic, and route finding strategies. The program emphasizes vehicular style bicycling, where bicyclists follow the same rules of the road as motorists. The program empowers students to use bicycling and walking as ways to travel.

The curriculum covers the following topic areas:

- Benefits of walking and bicycling
- Common crash types
- Defining roles of vehicles (cars, bikes) and walkers
- Pedestrian behavior
- Bicycle helmets and equipment
- Bicycle handling skills
- Route finding for bicyclists and walkers
- Traffic laws and rules of the road
- Road positioning
- Intersection types, right of way concepts pertaining to intersections, turning through intersections
- Riding through the community

Students also improve other skills, including:

- Communication and team building
- Self-esteem and self-assertiveness
- Bicycling in groups

Bicycle and Pedestrian Safety Education – Three Teaching Levels

The program is divided into three Levels. Each progressive level provides more in-depth learning and greater opportunity for students to practice and apply safety knowledge in real-life scenarios. Each level requires increased expertise, time, and resources to effectively implement.

Teaching Level 1 covers essential traffic safety concepts including helmets, rules of crossing the street,

TRAINING FOR TEACHERS

Our training for Classroom Teachers is a 10-hour workshop that gives teachers the basic skills to organize, coordinate, and conduct the Safe Routes to School curriculum. However, the 10-hour workshop is only part of the expert LCI training program. Therefore, the League highly recommends that classroom teachers run Level 3 (on-street) programs in tandem with a local LCI.

TEACHING LEVELS

Teaching Level	Time Required	Class Location	Content Outline
Level 1	3 hours	Classroom	Essentials: Basic traffic safety concepts
Level 2	3 hours	Classroom, walkabout and bicycling on or adjacent to school grounds	Midlevel: Bicycle handling skills; walking excursion; basic street skills and intersection types
Level 3	4 hours	on-street bicycling	Advanced: Refined bicycle skills and on-street community practice rides

identification of key traffic hazards, and route selection. Level 1 instruction remains in the classroom and requires few external resources.

Teaching Level 2 requires a walking excursion and interacting with and riding bicycles, without any on-street rides. Level 2 requires more resources, including bicycles, helmets, and volunteers to support the on-bike drills. Level 2 instructors lead practice drills allowing students to practice riding out from driveways and walking access on nearby streets. The walking excursion can be effective by using real-world traffic scenarios to teach.

Teaching Level 3 includes on-street walking practice and community bicycle rides, providing students with the most advanced degree of knowledge and practice. On street drills and bicycle rides provide real life context for youth; community bicycle rides are fun events that require skilled volunteers and safety measures. Level 3 requires the most coordination and expertise by instructors. (The League of American Bicyclists strongly encourages on-street bicycle instruction to be run by a certified League Cycling Instructor, or LCI.)

Format of the Lesson Plans

The lesson plan is laid out sequentially, so that an Instructor teaching all three Levels will start at Lesson 1 and finish with Lesson 10.

The lesson plans are flexible and the sequence of the lessons can be altered. Instructors should make sure to teach all key concepts. Each individual lesson plan is formatted like a chapter. The lesson plan provides an overview of the lesson, the health and physical education goals achieved by the lesson, description of the activities, details of and how to administer the activities, required materials, and copies of handouts for each activity.

Each individual Lesson begins with a Purpose, Activities, Materials, Background, and/or Introduction that are necessary to run the lesson. Within the curriculum, some of the lessons refer to each other.

In the back of this curriculum are a set of student handouts, teacher materials, and volunteer information. These are organized by lesson.

Youth Development & Traffic Safety

Traffic-related crashes are the top cause of death and major injury of youth ages 1-17. At the same time, preadolescents are at the age where they begin to travel further from home, increasing the risk of traffic injury. In fact nationally children ages 11-14 have a higher rate of bicycle crashes than any other age group, in part because they use bicycles in a broader range of traffic scenarios, in part because of their increased physical ability coupled with a desire to take more risks, and in part to lack of proper training.

The SRTS formally educates preadolescents to skillfully walk, maneuver bicycles, and select a safe route for travel. This curriculum engages youth through multimedia and practical walking and biking activities, empowering them to travel effectively, independently, and make sensible and informed traffic decisions.

Child Development

Children are not small adults. However children grow quickly and their cognitive and physical capacities change substantially through childhood. Between ages six and 11, a child's cognitive and physical ability accelerate rapidly; research agrees that by age 11 a child's cognitive and physical abilities are adult like. These skills include:

- Depth perception
- Speed perception
- Peripheral vision
- Physical strength
- Muscular coordination

At the same time, children desire to travel to further destinations; correspondingly, research shows that historically parents provide more freedom for preadolescent children. As a parent increases the distance from home that a child is permitted to travel, it makes sense to teach a comprehensive traffic safety program.

Continuum of Traffic Safety

Studies show that a continuum of traffic safety education is the most effective in changing behavior.

The continuum of traffic safety education begins at the elementary level, typically including basic traffic safety messages at age six and more advanced pedestrian safety and basic bicycle skills for ages seven through nine. On-street vehicular training is reserved for preadolescent youths, ages 10-14. Preadolescents' cognitive and physical skills have developed so they can make accurate and skillful decisions as vehicle users. Young driver education begins at Driver's Permit age, approximately 15 – 17 years of age.

The League Safe Routes to School Traffic Safety Program serves as a middle segment in this continuum, offering hands-on and real on-street traffic training skills. The curriculum covers both pedestrian and bicycle skills; pedestrian safety education may be a review for students; however most of them will not have gone on walking safety tour. The vehicular style cycling/ driver education will most certainly be new for most middle school students.

Children that were previously trained in bicycle safety transfer their knowledge and skills to motor vehicle driving skills and safety.

Research also finds that young drivers, generally lacking extensive driving education and experience, are the highest risk drivers. Children that were "previously trained in bicycle safety transfer their knowledge and skills to motor vehicle driving skills and safety" (Stutts and Hunter, 1990 and McArthur, 1998 as in Harborview). These lessons are a critical link to developing a safer driver population at all ages.

People-Power Improves Life

Bicycling and walking are great activities for remaining active and healthy. At a time when obesity among Americans has reached epidemic proportions, bicycling and walking are realized as excellent and efficient means to meeting daily physical activity needs. The extensive road, and specifically on-the-bicycle lessons offered by this program are designed to increase bicycle ridership, physical activity, and safe and predictable riding among children.

Program Credentials / The League

The League of American Bicyclists runs the premier national bicycle education and instructor certification program in the nation. League's Smart Cycling program contains multiple courses for adults and a Cycling Skills Parents program that teaches adults to work with young children. This curriculum is our national middle school program, geared for ages 11 and up.

This curriculum is based on our Traffic Skills 101, a nine-hour course for adults. However, most children lack adequate knowledge of traffic law and independent travel, so this curriculum focuses on skill and knowledge building for vehicular behavior. In addition to being a review of walking safety, the SRTS is effectively a Driver's Education program for youth bicyclists.

The SRTS was also developed through extensive research of successful program models found in North America. The program uses the Bicycle Transportation Alliance's (in Oregon) Bicycle Safety and Awareness Program curriculum as a template; not surprisingly, Oregon's program was developed using the League's Traffic Skills 101 as a template. Also researched were programs located in Florida, Texas, California, Chicago, Montana, Philadelphia, Minnesota, Maine, and the National Center for Bicycling and Walking.

Comprehensive bicycle safety programs include on bicycle and on-street components are found to effectively teach riding skills, decrease rates of bicycle-automobile crashes, and decrease injury rates. In contrast, the Harborview Injury Prevention report finds that short-term programs, such as two-hour programs, can be inadequate: it "was not effective in improving safe cycling behavior, knowledge, or attitudes among fourth grade children due to its inadequate time frame." (Training Programs for Bicycle Safety. Harborview Injury Prevention and Research Center, 1998, p.3.)

Getting Started

In order to get started you will need to acquire materials, resources, and expertise. These resources can often be found in your community, at service and governmental agencies, non-profit organizations, and community experts. The League of American Bicyclists may be able to help.

Logistics to consider before implementing this curriculum include:

A. WHICH TEACHING LEVEL ?

This 10-hour curriculum is divided into three levels, each requiring additional resources and providing expanded learning for the children. The League of American Bicyclists recommends a 7 – 10 hour lesson plan that includes on-bike and on-street bicycle riding and walking education (Level 3.)

Running a Level 3 program requires resources and instructor training. These resources can often be found in the local community, and the League offers trainings and support to obtaining the resources necessary to run this curriculum. Visit www.bikeleague.org to find out more.

B. RESOURCES AND VOLUNTEER SUPPORT

This curriculum is most easily and successfully completed with community partners. Resources may already exist in your community. Local resources include local certified League Cycling Instructors, community service or governmental agencies, Parks and Recreation District staff, non-profit organizations, bicycle safety advocates and clubs, bicycle shop owners and employees, parent volunteers, and others that will help coordinate the program.

Important resources include: training, equipment, and volunteers. Bicycles, helmets, and maintenance equipment are required in order to run Teaching Levels two and three. Training and equipment are discussed below.

C. TRAINING AND SKILL BUILDING

The League of American Bicyclists nationally certified League Cycling Instructors (LCI) are equipped to provide teacher training, classroom instruction, and program coordination services to successfully run this curriculum. Expert LCIs are located throughout the nation, and the League can help bring them to your community. Search for LCI in your area on-line at www.bikeleague.org.

D. ADMINISTRATIVE BUY-IN AND LIABILITY ISSUES

Obtaining administrative buy-in can be easily achieved by demonstrating the benefits of this curriculum. Traffic safety and healthy lifestyles are crucial components of any curriculum. This one includes:

- ***National Curriculum Standards –*** this curriculum meets national curriculum content goals.
- ***Personal Safety –*** protecting the safety of our children is the utmost importance. Traffic-crashes are the top cause of death and major injury for people ages 1 –17;
- ***Healthy Lifestyles –*** children today are more sedentary and obese than any prior generation, with 25 percent of 8th graders being significantly overweight, bicycling and walking are excellent lifelong active lifestyle choices.
- ***Lifelong Activity –*** bicycling and walking are lifelong activities and can replace units such as bowling, ping-pong, or other health units.
- ***New Resources –*** in strapped times, the SRTS brings in greatly needed resources and community support;
- ***Practicality –*** students are walking and bicycling anyway. Middle school students are more adventurous and have increased independence. Many of them are on the streets without any traffic safety education.
- ***It's fun –*** students enjoy the hands-on and practical nature of this curriculum. It will be one of the memorable lesson plans for the year.
- ***Liability –*** liability is generally covered using standard field-trip procedures. Field trips routinely take students off-campus, and schools are set-up for this level of liability. The SRTS on-bike lessons are educational field trips, where the education is the trip and perhaps pending destinations. Like all field trips, students are required to submit parent-signed waivers, volunteers will be recruited, and safety measures will be taken to ensure a safe experience. See the appendix for a sample waiver. Affiliated agencies, including non-profit organizations, should obtain insurance for the purpose of bicycle riding with children.

E. EQUIPMENT AND BICYCLES

In addition to curriculum tools, bicycles, helmets, and other cycling equipment are required in order to

TRAINING FOR TEACHERS

Our training for Classroom Teachers is a 10-hour workshop that gives classroom teachers the basic skills to organize, coordinate, and conduct the SRTS2 curriculum. However the 10-hour workshop is only part of the expert LCI training program. Therefore, the League highly recommends that classroom teachers run Level 3 (on-street) programs in tandem with a local LCI.

Please contact the League of American Bicyclists at www.bikeleague.org for more information on accessing these training resources.

run on-bike activities. The League provides curriculum resources, but bicycles and equipment must be obtained locally.

Equipment for school-based bicycle programs can be expensive, costing approximately $5,000 for a full fleet of bicycles, helmets, and materials. This equipment may already exist in your community, for example at an after-school activity center or for a local summer program.

Schools districts can often partner with government and non-profit agencies to acquire the equipment. Sharing a bicycle fleet with multiple schools or school districts (rotating the bicycle between schools every one to three weeks) will distribute and justify the expense.

After-school, summer, or other non-classroom based programs can require students to bring helmets and functioning bikes. However students may bring bicycles that are in poor condition and these cannot be used. Teachers and instructors may ask a bicycle mechanic or other knowledgeable people to volunteer to help fit bikes, and fix minor mechanical problems. Instructors should always have an extra supply of helmets for loan or sale.

F. IMPLEMENTATION LOGISTICS

This curriculum can be run in a variety of settings, ranging from a school classroom of 30 children, an after-school club, or as a summer program. The lessons plans will remain the same; however they are flexible and will be organized differently to accommodate the variety of program settings, time periods, group size, skill, and supervision.

Below is an overview of additional implementation logistics pertinent to running this program. Logistical support is also provided at the start of each lesson. Resources and information including forms, permission slips, equipment lists, resources, and contact lists can be found in the appendix.

Obtaining Students

This program is intended for school classrooms, where the majority of the students participate. After school and summer programs generally require advertisement and recruitment strategies; some summer programs have mandatory participation policies. Promotional flyers and outreach strategies include catalog and media listings, posting information, and hosting courses as part of an existing community center programs.

Classroom Requirements

This curriculum requires in-class and on-bike activities. Teaching Level 1 is in-class only. Instructors should find a classroom that easily accommodates students, has a blackboard, overhead projector, and video access. The classroom should fit basic equipment such as bicycle helmets; students may request to store bicycles in the classroom.

Blacktop Requirements

Teaching Level 2 requires the use of an on-campus, off-street blacktop area. Lesson 2 provides information about blacktop requirements and course layout. A blacktop space 50′ x 150′ is ideal. A grassy field is a good substitute for blacktop if none is available.

On-street Riding

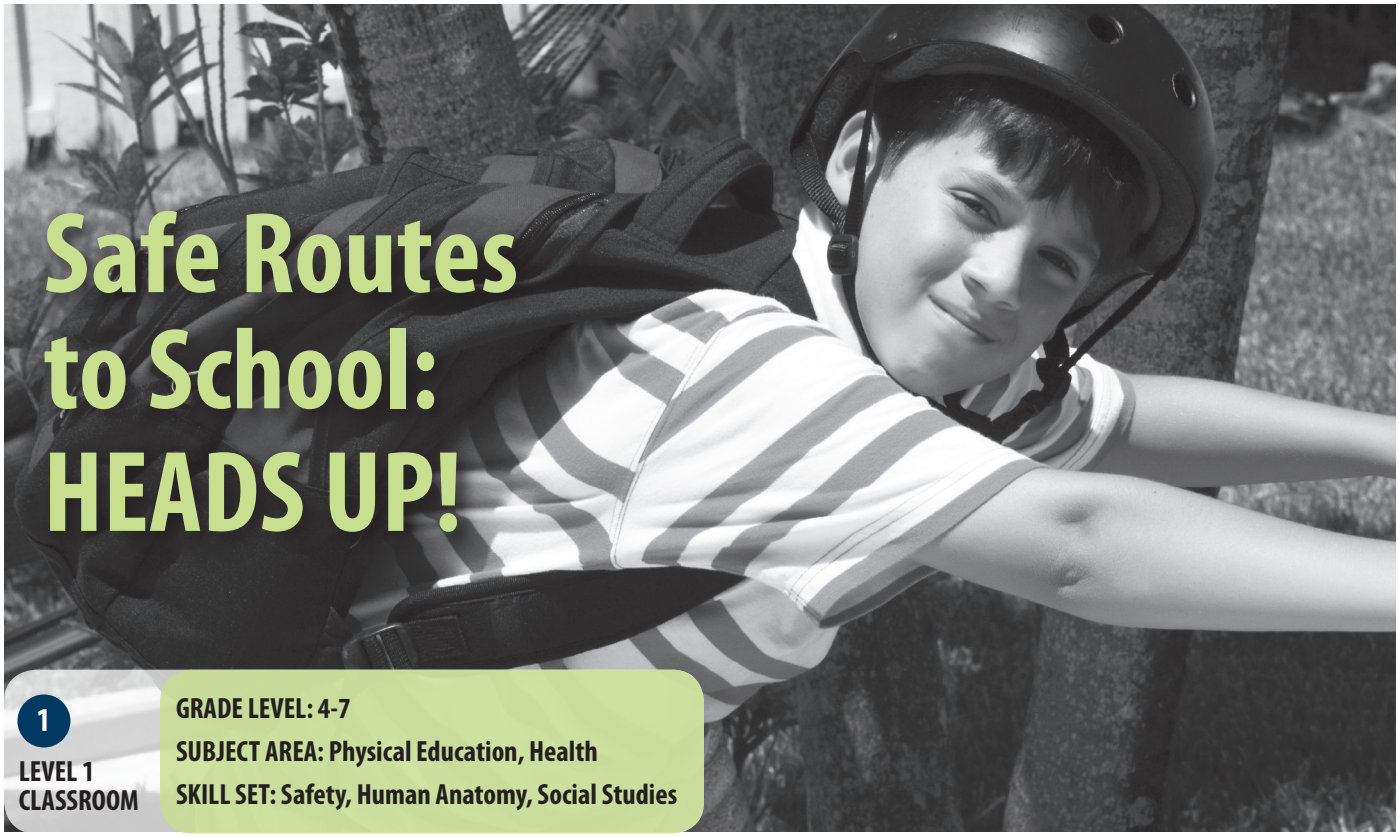
Teaching Level 3 of this course requires low-traffic streets for on-street bicycling skills practice and low to medium traffic streets for the community bicycle rides. More information is available in lessons 5, 6 and 8.

Storage

A school program that includes bicycles will need to locate on-site storage for the duration of the course and permanent storage during the non-teaching times. A secure and dry 15′ x 15′ space is ample to store 30 bicycles. This space should accommodate other program equipment including helmets, cones, etc. A locker room, storage closet, or classroom will work. Bicycles can also be stacked on each other to fit into a smaller space.

Outside the Classroom

Bicycling and walking field trips are enjoyable for students, whether in the class or in extracurricular activities. This course is a perfect program to precede an after school bicycle club, for a youth racing team, or for some other type of community service program that has students bicycling to destinations.



Safe Routes to School: HEADS UP!

1
LEVEL 1
CLASSROOM

GRADE LEVEL: 4-7
SUBJECT AREA: Physical Education, Health
SKILL SET: Safety, Human Anatomy, Social Studies

Purpose

Students receive introduction to Safe Routes to Schools programs and take an attitude survey to help them understand the importance of bicycle and pedestrian safety. Students learn the importance and basics of becoming responsible pedestrians and drivers.

Students learn the importance and proper fit of bicycle helmets. Students will fit themselves with the helmet they will need for bicycling and complete a pretest of traffic laws and safety behavior.

Activities in this Lesson

- Introduction to the Bicycle and Pedestrian Safety Program – 20 minutes
- Brain function and injury (Discussion) – 5 minutes
- Melon drop (Activity) optional – 5 minutes
- Helmet fit (Activity) – 30 minutes

Materials

- Waterproof barrier (plastic trash bag) and rags for cleaning up
- One head-sized melon (ripe)
- Helmets of various sizes (we recommend the majority of helmets to fit 22" – 23 1/4" head circumference). Provide helmets or have students bring one.
- Overhead of helmet fitting brochure
- Masking tape
- Permanent marker
- Pretest

Set Up

Regular classroom, multi-purpose room or gym or blacktop, park or parking lot closed to motor vehicles

Preparation

Research local helmet law (20 States and 87 jurisdictions have some sort of law requiring helmets for young riders.) www.bhsi.org

- Cue tape
- For helmet melon drop only (optional):
  - Set ladder
  - Spread tarp
  - Put helmet on melon

Notes:

It is important that every student participant wear a properly fitting helmet for all on-bike lessons. Either they should bring a helmet in, or you must supply them with a helmet.

Introduction to Safe Routes to Schools

How did you get to school today? Have your students fill out the survey found in the Appendix. Write the survey results on the chalkboard. Count the number of:

- Walkers
- Bicyclists
- Bus riders (public or school bus service)
- Family car – single child
- Carpool – how many child passengers? How many adult passengers?
- Other?
- Do your parents trust you to get to school on your own? Why or why not?
- Do you wish you could get around on your own?

We will be studying biking and walking safety and talking about our transportation choices as part of this series of Safe Routes to Schools lessons.

Kids all over the country are getting together with their parents and teachers to try to increase the number of students who bike and walk, and to make it safer for kids to bike and walk. Almost all students biked and walked to school in 1950. Today, fewer than 15 percent of children walk to school every day. Why? (Ask students if they think of reasons to account for this trend.)

- Population has increased
- Growth in motor vehicle use has exceeded rates of population growth. The result is far more traffic.
- High traffic volumes mean greater danger. Thousands of children each year are killed and injured in motor vehicle crashes – as passengers, pedestrians and bicyclists. Motor vehicle injury is the leading cause of death for children aged two to 18.

- Parents, teachers, school principals and others perceive many dangers to students walking or bicycling to school. (Discuss).

EXPLAIN UNIT OUTLINE

- Ask for four of the best reasons to ride.
- Ask who is looking forward to getting their driver's license?
- Ask who has considered the cost?
- Explain we are going to learn how to "drive" a bike, preparing for driving in a few years but achieving the mobility now.

Pre-test

Have students complete the traffic safety test that is found in the Appendix of this curriculum. The pre-test helps students gauge their existing traffic safety knowledge and gives students an idea of the most important topics that will be tested at the end of this curriculum.

ATTITUDE SURVEY/ INTRODUCTORY DISCUSSION

Have students take the SRTS attitude survey found in the Appendix, and discuss their answers and opinions.

How many of you ride or walk to school? Fill out attitude questionnaire. (10 minutes.)

Ask who can tell us about SRTS? Kids around the country are starting projects, such as walking school buses, where students meet and walk together, and frequent rider contests, where students compete as a class to see who can add up the most miles.

EXPLAIN 4 ES OF SRTS

1. **Education –** We can improve our safety by learning and increasing our skills
2. **Encouragement –** What will encourage you to ride and walk to school? Are you concerned about your health, the health of your environment? Do you want to win prizes or feel refreshed

and ready to learn once you get to school?

3. **Engineering –** We will learn about how the roadways, crosswalks and signs and signals around our school affect our trip to school. What do we need to be safer when we travel by foot or by bike?
4. **Enforcement –** All road users need to face penalties if they violate the laws that help keep them safe. We'll be learning about those laws and working with our community's law enforcement officers to keep us safe.

Brain Function and Injury

What: a discussion of the importance of the brain and its functions. This activity helps inform students of the importance of the brain and encourage use of the helmet for protection.

Questions: What do you all think is the most important part of the human body? What are the functions of the brain?

Discussion: The brain is the most important, or equally as important as any other part of the human body.

- "Raise your hand if you've ever crashed a bike or hit your head?"
- "Raise your hand if you've ever felt dizzy, had a bump on your head, needed stitches, had a concussion, etc.?"

The human brain is responsible for overseeing the daily operations of the human body and for interpreting the vast amount of information it receives. The adult human brain weighs an average of 3 lbs., or about 2 percent of the total body weight. Despite this relatively small mass, the brain contains approximately 100 billion neurons. Functioning as a unit, these neurons make up the most complex and highly organized structure on Earth. The brain is responsible for many of the qualities that make each individual unique-thoughts, feelings, emotions, talents, memories, and the ability to process information. Much of the brain is dedicated to running the body, controlling and integrating the various systems that make up the body.

FUNCTIONS

Different regions of the brain have different function and control specific activities. These include voluntary functions and involuntary functions.

The brain is divided into three main areas:

- the brain stem, responsible for basic body functions such as heartbeat regulation;
- the cerebellum, responsible for things such as balance and muscular coordination and
- the cerebrum, made of two distinct hemispheres and responsible for higher brain functions including thinking and emotions.

VOLUNTARY FUNCTIONS

Voluntary functions are those of which you are aware, and which you voluntarily control. Name some voluntary functions.

The Cerebral Cortex, is the control center of the brain that controls voluntary activities. Such as learning, intelligence, and judgment. This is the thinking tool. It is made up of four lobes.

1. **Frontal Lobe:** Problem solving, Judgment, Inhibition of behavior, Planning, Anticipation, Self-monitoring, Motor planning, Personality, Emotions, Motivation, Awareness of abilities, Organization, Attention, Concentration, Mental flexibility, Speaking.
2. **Parietal Lobe:** Sense of touch, Seeing differences in size, shape, color, Spatial perception, Visual perception, Reading.
3. **Temporal Lobe:** Memory, Hearing, Understanding language, Organization, Sequencing, Music Awareness.

FORCE

Research shows that up to 90 percent of deaths from bicycle crashes are the result of head trauma. A properly worn and certified bicycle helmet cushions and protects the head from damaging impacts with hard surfaces such as asphalt and concrete. Scientists measure how hard something hits something else with "g forces." Things that hit hard have a high g force and high potential for damage. 300 Gs is enough to cause permanent brain damage. 500 Gs can fracture the skull and cause death. The head of someone who falls from bicycle height to a concrete surface can receive a force of more than 1,800 Gs. Helmets can reduce the 1,800 Gs of bicycle falls to less than 200 Gs, which is not enough to fracture a skull. Many doctors agree that if all bicyclists wore helmets, 75 percent or more of bicycle-related deaths would be eliminated. (Florida, Traffic Safety Curriculum)

DEMONSTRATION: MELON DROP

What: An activity where a melon is dropped to simulate impacts of a bicycle crash on the head and brain. This activity helps demonstrate importance of wearing a bicycle helmet to reduce brain injury.

Materials:

- Waterproof barrier (plastic bag) and rags for cleaning up
- One head-sized honeydew melon (ripe)
- CPSC approved bicycle helmet

1. **The Melon Drop consists of two drops.** The first is with a helmet (and the melon shouldn't break) and the second without. The melon should break on the second drop.
2. **Introduce melon.** This is my friend "Mel" or "Bob" or whatever. Have students inspect the melon for bruises. Mel is wearing a properly adjusted helmet, which covers the forehead. [Demonstrate level helmet fit on melon.] Helmets work because the hard Styrofoam liner inside breaks instead of you head. The shiny plastic on the outside keeps the helmet sliding with you and not twisting your neck or coming off your head. [Demonstrate sliding the helmet on the pavement.]
3. **Cover the hard floor surface with the cut trash bag.** Strap the melon in a helmet and drop it six feet onto a hard surface. Observe the results. The melon should not break, demonstrating how a head can be saved because the helmet absorbed the force of the fall. If the melon gets injured, the teacher should note that even with a helmet, heads can get injured — but watch to see what happens when we drop it without any helmet.
4. **The melon is then dropped six feet without a helmet.** It should break and this is because it received the full amount of force from the fall. Heads are fragile: they may crack and you may get permanent brain damage because of high-impact falls. If the melon does not break, it will bruise and that will show up in a few days. Look for a soft spot. That type of damage may still cause permanent brain damage.
5. **Optional:** pass around a cracked helmet and discuss helmet care, that they are fragile and shouldn't be dropped, that they are intended to absorb force one time. Once cracked they should be replaced.

4. **Occipital Lobe:** Vision, Musical Ability.

The Cerebellum coordinates muscle movements including balance, posture, and general coordination. It helps coordinate our body parts to do physical activities. These include walking, dancing, playing basketball, video games, and riding a bike.

INVOLUNTARY FUNCTIONS

Involuntary functions are those that are not under our conscious control. What are some involuntary functions of the brain? [Discussion: is breathing a voluntary or an involuntary function?]

The Medulla Oblongata is part of the brain stem region that controls involuntary (autonomic nervous system) functions and reflexes. These involuntary actions include breathing, blood pressure, heart rate, digestion, swallowing, and coughing.

The midbrain controls functions like seeing and hearing.

Some of the Cerebellum's functions are involuntary. (For more detailed brain info, see Brain Awareness Week Lessons: http://faculty.washington.edu/chudler/baw1.html)

The brain is delicate. The brain has a consistency similar to Jello, and unlike other parts of our bodies; it usually cannot repair itself. If we cut our finger what happens? We bleed, our blood clots and stops the bleeding, and eventually we get a scab, pick it off 15 times, and your finger is as good as new. Though sometimes these cuts are beyond repair, have you ever seen someone with a body part amputated? Four fingers or one leg? Well, those injuries were probably really big and maybe even very bloody. To injure our brain permanently it does not require a big bloody injury.

Permanent brain injury can happen without blood, from something as simple as cracking your head against the ground. And, any injury to the brain is very, very difficult to repair.

What Does Brain Injury Mean?

Definitions of brain injury can vary slightly depending upon the cause of injury. A traumatic brain injury (TBI) is generally defined as an injury to the brain caused by an external physical force. Depending upon how the brain is injured, a person's speech, movement, cognition, and behavior may be affected. Examples include: losing memory of ability to do basic tasks such as speak, read, write, or walk. Very severe brain injury can leave your motor functions disabled, while your body is still alive and breathing. Your quality of life will have degraded, as you would not be able to do anything you like to do, you might need constant care, but you would still be alive.

Ask: "How would you feel if you couldn't play basketball anymore, not because your body wasn't good but because your brain couldn't figure out how to walk?"

This is why we wear helmets. As you know, not only bicyclists wear helmets but many sports and professions require helmets. (We will do an exercise to list them below.) Some states have a helmet law. Find out if yours does at www.bhsi.org.

Melon Drop

Draw a red cut on the palm of your hand about two inches long without students noticing.

INJURY 1 - CUT

"For our next lesson I want to talk about first aid. Ouch!" [Hold up your hand.] "What should I do with this?"

Get students to talk about what they would do.

- Is the scene safe? Look left, right, left, up and down. Don't create another victim or get hurt even more.
- Apply direct pressure, elevate above the heart to slow the bleeding, bandage wound.
- It forms a scab, then eventually heals and becomes a scar and a story.

INJURY 2 - BRUISE

Demonstrate on your arm something hitting it. What happens? Go step by step. Call on students for answers.

- It swells up. [Grab the skin on your forearm and demonstrate how stretchy your skin is. Your skin can handle the swelling.)]
- It swells up so blood can go there and help to fix the damage. Also so that you know to leave it alone and let it heal.
- It gets purple.
- It heals and goes away.

INJURY 3 – BRAIN INJURY

You have a built-in helmet, your skull. It is hard and meant to protect your head. What if you have a bruise, but this time it is to your head? Your skull doesn't get bigger to handle the extra pressure.

What does your brain control? Everything! When you get a bruise to your brain, blood flows to your head and pressure build inside your skull. Everything inside gets smashed together.

Your brain is like a super computer with all kinds of connections linking thoughts and actions. What would happen if I took some wire cutters and started cutting the wires inside your computer. Would it work? Maybe for some things, maybe not at all. When all that pressure builds inside your brain is smashes everything together and breaks those connections.

"Does anyone know what you might be able to do in this case at the hospital?" [Simulate drilling holes in your head.] Doctors drill a hole in your head, then they saw a section of your skull open and lift it

WHO USES HELMETS?

While students are coming up to get helmets in small groups, have others list as many sports and professions, or other times where people wear helmets. When all students have helmets in hand, have students call out one time when people wear helmets.

SPORTS: biking, boarding, roller blading, football, baseball, hockey, rock climbing, bungee jumping, skiing, luging, motor cycle and car racing, caving, and some boxing.

PROFESSIONS: construction, jet pilot, astronaut, motorcycle police officers, and firefighters.

OTHER: motorcycling

HELMET FIT: STEP-BY-STEP

Selecting a helmet that fits: Put a helmet on your head, and without securing the chin strap shake your head to see if it shifts from side to side. If it moves a lot, it is too loose. Try putting in thicker head pads. If the helmet does not go on, or does not cover most of the forehead, it is too small (Note: Helmets have adjustable dials or pads. Make sure to adjust yours so that it fits your head correctly).

Eyes: Helmets should cover the forehead and should rest only be about an inch above the eyes. Students should be able to see the front of the helmet when looking up. Helmet should sit no more than two fingers above the eyebrow. DO NOT allow the helmet to be tilted back on the student's head, exposing the frontal lobe.

Ears: Start with the hollow buckle, leave it unclipped from the pronged buckle end. Position the buckle under the chin and adjust the slider so the ear is between the two straps and the slider is near the point of the cheekbone and just below the ear lobe. The sliders should meet in a V or Y (show with two fingers) below the earlobe. Do the same with the pronged buckle. This may require pulling more strap through and readjusting. Make sure the straps lay flat and don't twist. New helmets have a small black rubber band to secure the pronged buckle and keep it from sliding off. If this is missing use a regular rubber band. If the strap ends are too long after adjusting fold them over and secure with another rubber band or cut them off and heat the end to keep it from raveling.

Mouth: The chin strap should be snug enough so the helmet will move when the mouth is opened wide. You should only be able to put one or two fingers between strap and chin.

Check: You should not be able to move the helmet more than an inch back on your head. If you can, the sliders of the helmet strap should be moved forward on the face. If you helmet falls over your eyes, then the rear strap should be pulled tighter through the slider.

You may be able to have each student put their name on masking tape and place it on borrowed helmets so they can be used in future lessons. Place helmets in a class bag or some other easily retrievable location.

Use: Helmets do slide out of adjustment on occasion, so every time we wear them, the kids should be reminded to re-check the straps for the proper fit. Very small heads can benefit from a thin cycling cap used as a liner, and some hairdos will need to be rearranged to accommodate the helmet. It is not advisable to put a helmet over a large ponytail holder or hair clip worn high on the crown of the head, for example.

up till your brain swelling goes back down. Then they close the hole and you have a funny shaped head and a bad haircut.

Next you might have to learn how to walk again and talk again, if you are lucky.

Helmet Fit

What: An activity for student to fit helmets on each other's heads. This activity teaches students to fit helmets and do a helmet check.

Materials:

- Helmets of various sizes (we recommend the majority of helmets to fit 22" – 23 1/4" head circumference). Provide helmets or have students bring one.
- Overhead of helmet fitting instructions (see previous page)
- Masking tape
- Permanent marker

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

Discussion: How to fit a helmet

Putting a helmet on isn't as straightforward as you may think. Helmets must pass the proper-fit test to ensure they are on right. The helmet should be snug and not wobble excessively side to side.
Eyes: The helmet must be level on your head, covering the forehead, and you should be able to see it when you look up.
Ears: Sliders should be positioned in a V or a Y under earlobes
Mouth: You should be able to move your helmet by opening your mouth wide. No more than two fingers should fit under the chinstrap. The helmet should not push more than two inches straight back

WHEN TO REPLACE YOUR HELMET?

Never wear a helmet that has been crashed. Bicycle helmets are designed to be crashed ONLY ONCE. If your helmet shows signs of having been crushed, cracked or damaged in any way, the integrity of the helmet may have been compromised, and it needs replacing. Scratches on the plastic coating might be okay, but if the styrofoam has any cracks, the helmet will not absorb an impact and your brain will not be protected.

PROPERLY FITTING A HELMET

There are different sizes and brands of helmets, and each company might have different sizing. Demonstrate helmet sizing – too big and too small. Prior to starting, put on a poorly fitted helmet and have students identify problems with the helmet that you have on. Proper fit is important.

Students should either take out their helmet or come up 5 or 6 at a time to select one that you provide. Students can normally identify the size of their head in relation to the class (often correlates to height and weight). Ask students what size head they think have? Most students will need an adult size small or medium helmet. Have students retrieve their respective size.

Discuss the helmet fitting technique. Have the students read each step out loud. Go step by step with students and ensure they do it individually. Demonstrate each step and point out students that are doing it right as examples. Move on to next step as all students finish current step. Teachers should check each student to ensure that helmets fit well.

WATCH OUT FOR LICE

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

ROAD RULES: Video, Bicycling and Pedestrian Safety

1
LEVEL 1
CLASSROOM

GRADE LEVEL: 4-7
SUBJECT AREA: Physical Education, Health
SKILL SET: Safety, Human Anatomy, Social Studies

Purpose

Introduce traffic laws, the basics of bicycling in traffic, proper cycling conduct, and pedestrian basics.
Activities in this Lesson

- Legal and Safe
- Traffic Laws Introduced
- Difference between a pedestrian, bike, and car
- Bicyclists and Walkers must follow the law
- Common Reasons for Collisions / Hazards
- Riding on the Road
- Riding through Intersections
- Right-of-Way and Intersection Types
- Intersection Simulation
- Traffic Signs

Materials

- Vehicle shapes / cut outs – ensure that they can be seen from the back of the room.
- Large Illustration – Intersection types (make so that they have different vehicles that have the right-ofway and can be identified with a marker. Photos preferred.)
- Worksheet: Who has the right-of–way and intersection types.
- tape or marking chalk
- One Yield sign
- Four Stop signs – can be small or hand drawn if necessary
- a 14' x 14' square area at least- enough room for students to wait in a queue of two to three in line at four stops at the intersection.

Preparation

Know your local laws that pertain to bicycles.

Background

Similar to a driver's education course, this safety program teaches on-street bicycle riding. Most middle school students have a limited knowledge of traffic law, basic right-of-way principles, or experience interacting with vehicular traffic on the street. This lesson offers a multi-media presentation and discussion about traffic safety issues for both bicyclists and walkers. Listening to and discussing the rules is only the first step in the hierarchy of learning used for this curriculum. Lessons 4 –10 provide the next four levels of learning, including simulation, practice, application, evaluation.

Introduction to Road Rules

This in-class lesson covers the basics of traffic law and vehicle operation of roadways. This discussion covers the general topic of individual behavior and if the behavior is legal or safe.

People that are traveling – such as car drivers, bicyclists, and walkers – or people doing other activities can act within the paradigm of legal or safe. Laws (discussed below) are set to guide behavior, at the same time people must decide for themselves if their behavior is safe.

Write "Legal" and "Safe" on the blackboard. Using a few examples cover the legal and safe concepts.

E.g. Wearing a Bicycle Helmet: discuss the law. Often, the law is not enforced, making it questionable if students really must wear a helmet. Discuss the safety of wearing a helmet. Awareness of the implications of one's decisions is an important key to safety.

This program introduces the legal aspects of cycling and walking, and addresses safe and practical behaviors. Ultimately it is the student's responsibility to choose, we plan to give them the tools.

Traffic Laws Introduced

What: Discussion defining traffic laws, why to follow them, consequences, and liability. This discussion will familiarize students with the importance of and specific traffic laws.

Question: What is a law?

Answer: A rule or regulation set up by a government to be followed by all of the people. There are many different types of laws. Some are made to prevent people from committing a crime; others are to help keep people safe and healthy.

A law is a set of rules that everyone is supposed to follow and they are generally written to define safe and socially acceptable behavior and common practice. These rules, like the rules of a sport, often set conditions upon which people will interact. Traffic laws create a game-like situation, and it is important to follow those rules. Just like a sport, there are consequences or breaking laws, and they are much more severe than foul shots / yellow card.

Ask the students for examples of laws, reasons, potential consequences and punishment for breaking these laws.

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

Answer: Being responsible for your actions is called liability. Each one of us is responsible (liable) for the way we behave. For example, we are required to follow the rules of this class, if you don't, you may go to the principal's office, get detention, etc. Liability protects us from the irresponsible behavior of others. So if you injure someone or their property while breaking the law or rule, you are liable (responsible) for the damages.

Example: You are driving a car and fail to stop at a stop sign then crash into another person or car. The crash is your fault and you are responsible for replacing damaged property, paying doctors, paying a fine for breaking the law, and possibly for criminal charges if you injure or kill someone. So, laws are put into place to create order, to keep us safe and protect our stuff. In traffic, laws are essential, enabling others to predict what we will do. Bicyclists are required to ride like all other vehicles, to remain both predictable and safe!

CRIME AND PUNISHMENT

Example of a Law	Reason	Potential consequences of breaking laws	Punishment
Mandatory use of bike helmet	Protect our heads	Could injure or kill us if head is hit	fine
Stop at red light	Avoid crashes at traffic lights	Could injure or kill ourselves or someone else	fine to prison
Driving while under influence of alcohol	Prevent crashes due to intoxication	High risk of injuring or killing someone	fine to prison
Jaywalking	Protect walkers from getting hit by cars	Walker may get hit and killed by a vehicle	fine

Who is Traffic? What are the Differences Between Cars, Bikes, and Walkers?

Every state has a unique vehicle code that assigns laws and rules for using the roadways. Generally cyclists are considered operators of vehicles and must follow the same rules as automobile drivers. Walkers, however, have a different set of rules because they are not considered operators of vehicles. To confuse things more, bike riders can be pedestrians under the law, and in practice, by abiding by a complex set of rules of how to ride on the sidewalk. Generally though, bicyclists don't fare well under the law when riding on the sidewalk.

Learning the rules of the road for bicycling is basically learning to drive a car. We will ride our bikes on the street, like cars.

Generally riding on the street is safest for a cyclist, because:

- Bicyclists are not predictable when they ride on the sidewalk, and bicyclists skirt the legal classification of bicyclist and pedestrian, usually at fault in any crash type. e.g., when passing curb cuts, bicyclists are generally required to ride the speed of walkers, 2-3 miles per hour. That's slow!
- Conflicts with driveways and vehicle access points are very dangerous, and car drivers are not looking for cyclists.

In locations where street cycling is too dangerous, sidewalk riding may be suitable. But if the sidewalk crosses shopping plazas and busy destinations, cycling may not be a viable option until the cyclist becomes very skilled at traffic riding principles.

Question: What is the difference between a pedestrian, bike and car?

Answer: Define the difference between modes of travel and how they differ legally. Hold a participatory discussion among the class of the differences logistically, and then legally, between walking, bicycling, and driving. To start, it may be easiest to just discuss walkers and drivers.

Question: What is difference between a pedestrian and driver?

Answer: There are many differences between a walker and a driver. A bicyclists can be either, but a cyclist generally fares best when he or she rides a bike as one would operate a motor vehicle.

Bicyclists Must Follow the Rules of the Road

Bicyclists must act like drivers when riding on the road. A common sample statute says "Every person riding a bicycle upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of any other vehicle."

Riding with traffic/like an automobile includes:

- Riding in same direction as traffic.
- Following all traffic signs, lights, and regulations
- Follow the right-of-way rules
- Using hand signals
- Use proper equipment including lights at night

Reasons:

- PREDICTABILITY! Following the laws helps us predict what other drivers will do. (See optional Chaos Box activity on page 44.)
- Motorists do not expect to see traffic coming in the opposite direction or on the sidewalk. In order to be predictable and visible, bicyclists must ride where motorists expect to see traffic.
- Wrong-way riding results in nearly one fourth of all car/bike crashes.
- Traffic control devices (i.e. stop signs and traffic lights) face the normal flow of traffic. Wrong-way riders cannot see signs and signals.
- Wrong-way riders may create a hazard of a head-on collision with cyclists riding on the right, or pedestrians.

Pedestrians Must Follow the Rules of the Road (Not Vehicle Rules)

Pedestrians are not considered operators of vehicles under the law, and must abide by a different set of general rules. Generally, the pedestrian has the right-of-way, or right to go without yielding, in most situations. However a walker is very vulnerable and must be careful when faced with difficult situations. Walking principles include:

- Walk on the sidewalk or path.
- Walk in the opposite direction as traffic when there are no sidewalks.
- Follow all traffic signs and lights. Stop and look at all stop signs, cross with the green at intersections.
- Try to find marked crossings. Be very careful when you can't.
- Wear bright clothing to help you be seen, especially at night.

Reasons:

- The sidewalk is a safe, dedicated place for pedestrians.
- When walking against traffic, you should step aside if needed to avoid cars, as you do not have the right-of-way in the road. **Do not ride a bike in the opposite direction.**

Common Reasons for Collisions / Hazards

What: Discussion of the hazards and reasons for collisions for bicyclists and pedestrians. Discuss the top causes for bicycle and pedestrian crashes with vehicles, often causing severe injury or death. This discussion will increase the awareness of the hazardous situations and intersection types of collisions that most regularly affect students.

The worst bicycle crashes typically occur when crashing with a car, however only 17% of all bicycle crashes involve a motor vehicle. There are many types of hazards that lead to the other 83% of crashes.

In traffic collisions between youth cyclists or pedestrians and automobiles, youths are at fault the majority of the time. Therefore basic traffic smarts can prevent most life-threatening crashes. This curriculum will talk more about road rules, and how to get through intersections, emerge from driveways, and properly cross the street.

CRASHING WITH CARS

Children between the ages of 10-14 have the highest rate of bicycle crashes with cars; while ages 5-9 have the highest crash rate while walking in traffic.

Question: Why do you think our age group has the highest bicycle crash rate? Why might younger kids have higher crash rates as pedestrians than our age group?

Answer (Ages 10-14):

- Take more risks
- Don't look for traffic
- Don't know the rules
- Haven't developed riding skills.
- Think they are invincible

MOST COMMON CAUSES OF BIKE/ PEDESTRIAN CRASHES FOR YOUTHS

BICYCLING:

- Cyclist come out of a driveway, doesn't stop and collides with a car
- Cyclist fails to comply with the right-of-way rules at intersections, such as running stop sign
- Cyclist is riding the wrong way, against traffic

WALKING:

Younger children are involved in more pedestrian car crashes. For all children, concerns include:

- Walker darts out mid-block
- Walker is not visible to auto driver and emerges into the street
- Speeding by the auto driver

What are young cyclists doing wrong while cycling?

- Don't follow traffic laws
- Don't look for traffic
- Ride on wrong side of the road
- Don't use lights at night
- Don't stop at the edge of driveways or intersections for traffic

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

- Failure to yield when changing lanes, or swerving into traffic.
- Bicyclists ride the wrong way on a street and crash with a car
- When a motorist turns left
- Sidewalk cycling - conflicts with other users failure to yield at intersections
- When motorists turn right
- When motorists restart from stop sign.

What are youths doing wrong while walking?

- Not looking, dart out
- Youths are less visible because they can be smaller
- Youths are not choosing the safest places and times to cross

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

Answer (Ages 5-9):
- Walk more, bike less
- Are less aware
- Lack of ability to perceive speeds and depth accurately
- Have less knowledge of a basic thing like crossing the road
- Don't bike as far as we do so don't crash as much

Question: Why do kids have higher crash rates than adults?

Answer:
- Bike more per person
- Have less knowledge, skill, and practice
- Are smaller and move faster and more unpredictably

OTHER COLLISIONS / HAZARDS

Youths actually crash a lot. Even though car crashes cause the most damage and injury, there are other hazards that lead to crashes of all types.

There are three main types of hazards: surface, collision and visual.

Surface hazards include glass, storm grates, potholes, railroad tracks, rain, ice, or leaves. Pay attention to road conditions and surfaces. Look ahead in addition to around you for potential hazards.

Collision hazards include turning cars, other bikers, pedestrians, dogs, and trains. Also included are parked cars with opening doors. Obey the rules of the road, avoid door zones, and pay attention for dogs and other hazards.

Visual hazards block the view. They include bushes, fences, other cars, buildings, and too little light at night; they affect both cyclists and pedestrians. Use lights at night and visible colors during the day. Ride predictably so that drivers will see you coming. Position yourself so that you can see around fences, bushes, and parked cars when entering a street or leaving a driveway.

Ask the students for the other ways in which students get into crashes. They generally can name many of the scenarios and can identify the hazards.

Riding on the Road

What: A discussion of specific rules for bicyclists. This discussion helps teach the specific road rules necessary for cycling.

FOLLOW THE RULES

Bicyclists must follow same traffic rules as vehicles. This helps make them *predictable* and *visible*.

Bicycle Helmet Laws

Some states have laws that require the use of helmets. Know the law in your state. As discussed in Lesson 1, helmets are an essential piece of safety equipment that should be used on every ride.

Bike Positioning

Bicyclists are required to ride on the right side of the road (generally, as far to the right as practical.)

Speed Positioning Rule

This rule says that slower vehicles stay further right. Think about driving on a highway: In general, the fast-moving cars stay to the left and slower cars keep to the right. The same principles apply for bikes, and this is the reason that bikes generally ride in position 3, the right one-third of the lane.

Bike lanes

While in a bike lane, bicyclists possess additional right-of-way privileges. In fact, bicyclists can legally pass on the right side of cars and cars are not allowed to turn in front of bicyclists in bike lanes. Bicyclists should remain very cautious of vehicles when in bike lanes. Specifically, avoid the "right hook," when passing a car on the right in a bike lane. A driver may not expect a straight moving cyclist moving up on the right, and may accidentally turn and collide with the cyclist.

Multi-use path

While a bike lane is for bikes, a multi-use path is for both bikers and pedestrians. These off-street facilities can be safe ways to travel;

SIDEWALK VS. STREET

Discuss the difference of riding on the street versus the sidewalk. The sidewalk has many potential obstacles, such as poles, fire hydrants, walkers, dogs, etc. The street does not have these types of obstacles but has vehicle traffic.

In Lesson 3 the class will hold another discussion about location preferences for riding. This discussion will include street types, bike paths, sidewalks, and the perceptions that students have of the safety, fun, and usability of these facilities.

however important rules apply here. Most multi-use paths have two-way traffic, so all users must stay to the right. Cyclists and skateboarders must always yield to pedestrians and give an audible signal, such as a bike bell or calling out "passing," when passing them. It's important to be careful around small children and seniors. Small children may unpredictably dart out and seniors are slow to react. Multi-path users must be especially careful of places where the path crosses a road. Most often road users have the right-of-way and so the path users must stop and wait until the traffic is clear. (Right of way is explained is greater detail below.)

Riding through Intersections

What: An introductory discussion of bicyclists maneuvering through intersections. This discussion teaches the basics of riding through intersections. Bicyclists must ride on the right, but what happens when they travel through intersections? We will draw the proper road positions for each type of turn.

Teachers should draw intersections on the board to label proper turning positions. Each lane of travel should be labeled with three positions, 1 (inside), 2 (middle), 3 (outside or right) and the direction of traffic flow: demonstrating each turn, staring from Position 3 and moving to the proper turn position.

INTERSECTION 1 - STRAIGHT

The bicyclist normally rides in position 3, about 3 feet from the curb. And 4 feet from parked vehicles to avoid car doors (the door zone.) Bicyclists can move into position 2 on a narrow street.

INTERSECTION 2 - RIGHT TURN

The bicyclist normally rides in position 3 and remains in position 3 when turning right through an intersection. Look for pedestrians crossing the street.

INTERSECTION 3 - LEFT TURN

The bicyclist is riding in Position 3 but must move to Position 1 when turning left. Before moving to Position 1, cyclists must look back and check for traffic, signal left, merge to Position 1, and then signal again to indicate a left turn. Cyclists must then yield to oncoming traffic and to pedestrians before turning. Complete the turn in Position 3. (See lessons 4 and 6 for detailed information on turns.)

A common mistake is to turn left from Position 3. Turning left from Position 3 is very dangerous because the cyclist is required to

NAVIGATING INTERSECTIONS

Driveway and Alleyway – Stop sign	Yield to pedestrians, stop to oncoming traffic. Important to get good position to see oncoming traffic.
Four Way Intersection with 0, 2, 3, or 4-way stop signs.	Vehicles with the stop signs must stop and ones without can go through. Three intersection rules apply.
Flashing Red Intersection	See above.
Intersection with Stop light	Green has right of way and left turning vehicles yield to straight vehicles. Drivers must watch out for yellow lights and pedestrians on turns.
Round About	Requires traffic coming into roundabout to yield to traffic already in the roundabout. (Only teach in communities with these treatments.)

cut in the front of cars approaching from behind.

Right-of-Way and Intersection Types

What: Discussion and activity where students learn about right of way rules and intersection types.

PRIMARY RIGHT OF WAY RULES

Introduce the concept of right-of-way.

Question: Who can tell me what they know about right-of-way? Who goes first at an intersection with a 4-way stop?

Answer: Traffic laws establish a set of rules called right of way that effectively inform vehicle users of who goes first. Here are some steps and rules to help you learn right of way.

Think about other activities that have rules that create an order: cafeteria lines, skiers, boaters, and hallways (a hallway analogy is used below).

IDENTIFY INTERSECTIONS

Identifying the type of intersection you are approaching is the first step to determining right of way. Some intersections have stoplights and others stop signs. These traffic controls determine the right of way rule scheme – intersections with two-way or all-way stops signs have different right of way rules; intersections with stop lights have yet a different right of way.

STOP LIGHTS, STOP, YIELD FLOW

Right of way is easier to determine in intersections that have traffic lights and signs. Review the right of way rules of the intersection types below:

- Traffic lights are straightforward: green, yellow, and red.

- Stop and yield signs require a vehicle to stop or yield to traffic without any sign, for example:
  - four-way intersections with two stop signs.
  - four-way with four stop signs.

Demonstrate traffic light intersections and four-way intersections types with illustrations or photos. Larger streets have the right of way over small streets, alleys and driveways.

Many intersections do not have traffic signs. In this case, a larger street with free flowing traffic has the right of way over a smaller street or driveway.

Think of a crowded school hallway. The students in the hallway have the right of way over a student who wants to leave a classroom to enter the hallway. Even though there is no sign, it is implied that the hallway students can keep moving and you have to wait for them. The same is true with driveways. When leaving the school, you have to wait for traffic to clear on the street before turning out of the parking lot driveway. (A student running through the hallway is a good comparison to a car speeding through a neighborhood.)

THREE INTERSECTION RULES

Often, intersections have either four stop signs or no signs but are all similar size streets (usually low-traffic neighborhood streets). In these cases, vehicle users must obey the three intersection rules.

The three intersection rules:

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

PEDESTRIAN RIGHT OF WAY

Pedestrians in the crosswalk or crossing the street at a corner have the right of way over vehicles going straight and turning. However walkers must look for oncoming traffic and walkers are not allowed to jump out in front of traffic. Crossing at street light is a good idea, only crossing with the green and they still must watch for turning cars that are not looking for walkers. Walkers crossing at intersections must make eye contact with oncoming drivers. Use a hand signal, such as the straight arm and palm to the driver, if you are unsure if a driver is stopping. Even if you have the right of way, playing it safe is better than crossing in front of car that is not going to stop.

Bicyclists may opt to become pedestrians, especially when facing a dangerous intersection or left-hand turn. To become a pedestrian, simply get off the bike and walk it.

DISPLAY AND DEMONSTRATION

Display aerial pictures of intersection and street types from the previous page. Try to develop an understanding of the concepts of major and minor streets. Mark the vehicles that have the right of way.

Using the intersection you've drawn and intersection (bicycle, car and pick-up truck) pieces, demonstrate the basic right of way rules at a four-way intersection. Start with two stops and then a four way stop. Discuss and demonstrate an uncontrolled intersection. Include pedestrian right of way rules.

Discuss:

- Type of intersection.
- Responsibility of vehicle user / tasks to navigate.
- Difference and similarities.

Questions: At which intersections do you always have to stop and wait for traffic? Which ones you can just slow down and wait for traffic? In what situations you are free to go through the intersection without yielding?

INDOOR INTERSECTION SIMULATION

(Activity designed by Jason Agar)

What: a simulation to demonstrate intersection principles and right of way issues.

- Tape or marking chalk
- One Yield sign
- Four Stop signs – can be small or hand drawn if necessary
- A 14' x 14' square area at least- enough room for students to wait in a queue of two to three in line at four stops at the intersection.

To demonstrate the three intersection rules, set up a simple simulation. Create a masking tape intersection on a carpet; design the intersection so that students can walk through it to simulate an intersection right of way process. Wait to put out stop signs on the corners. Create a variety of intersection scenarios to better explain the 3 intersection rules. Have the students practice pointing to the person on their right to determine who goes first. Repeat the exercise with two other students. Have the kids that are watching the demonstration help the volunteers figure out who goes first.

Question: What does yield mean? What do you do when you see this?

Answer: Elicit responses from students. "Yield means stop; wait. Yield means to surrender your right of way."

Question: What is Right of Way?

Answer: Elicit responses from students. "Right of way means a couple of things, one is that when you see this sign you surrender your right of way, or your turn to go."

Put out stop signs on the intersection. Students will watch and wonder what is going to happen next.

Orient students to the intersection. Tell them which directions the lanes go so they can recognize what they have already seen on the street.

Split the group up into four groups and turn it into a game show. Rotate calling on student volunteers in the intersection and teams that are watching. Keep track of points if you want.

Situation 1 – one student

- One student volunteers to approach the intersection and stops before the limit line (or crosswalk line). There's nobody else there. Who has the right of way?

Situation 2 - two students.

- One student gets there first. Who has the right of way?

- They get there at the same time. Who has the right of way?
- Driver on the right. Demonstrate one vehicle/student going followed by the other.

Situation 3 – four students

- We said that if you get there at the same time then the person on the right goes first.
- How about if everyone gets there at the same time? This is a trick question because everyone is on the right of everyone else. Demonstrate.
- What do we do? Everyone take a deep breath. Let it out. Now wave someone across like you see the adults you drive with doing at intersections. People breathe and then they figure it out. Someone goes. Wait for a student to go and then guide them in taking turns until all have gone.
- Practice with new students.

Situation 4 – Left turn with oncoming traffic

- Two students facing each other. One is going left, one is going straight. Who has the right of way?
- The one going straight has the right of way. If not, everyone would be trying to cut everyone else off all the time and it wouldn't work well on the road.
- The point of all the signals and signs at intersections is to keep people from crashing into one another.
- Continue with everyone else until all students have gone through with different variations. Include yield sign, configure intersection differently with the number of stop signs ... etc.

Traffic Signs

What: An activity that teaches students the shapes and meanings of traffic signs. Allow students to come to the board and draw any street sign that they know. After a couple of minutes, have them sit down and discuss each sign. Make sure to discuss: stop signs, yield signs, one-way signs, traffic lights, speed limit signs, school-crossing signs, no right/left turn signs, and signs indicating that multiple lanes must turn a specific direction.

Route Finding, Gear and Bike Maintenance

1
LEVEL 1
CLASSROOM

GRADE LEVEL: 6-7
SUBJECT AREA: Physical Education, Health, Social Studies (Mathematics - optional)
SKILL SET: Safety, Mapping, Navigation

Purpose:

Teach the importance of safe routes, fixing flat tires, clothing, and equipment.

Activities in this Lesson:

- Route Finding and Selection
- Bike and Walking Gear
- Bike Parts and Components
- Locking a Bicycle
- Fixing a Flat Tire

Materials

- Overheads of road types
- Student / adult survey – perspective on safety
- Post-test (and overhead)
- Answer Key
- Teacher Evaluation
- Overhead of test questions

WALKING AND BIKING GEAR MATERIALS

- Line of sight diagram
- Lighting - headlight, taillight, reflectors, reflective vests, and pant straps
- Commuting - bike rack, panniers, back pack, horn, bell
- Rain - fenders, rain pants, jacket, gloves, shoe covers
- One bicycle - should be equipped with many of the above items

BIKE PARTS MATERIALS

- Handout: Bike Parts (Appendix)
- Pencils
- A bicycle: to show what you are talking about
- Bikeability and Walkability Checklist (online)

LOCKING MATERIALS

- U-lock
- Cable lock
- Padlock
- Bicycle

PATCHING TOOLS (OPTIONAL)

- Small Tool bag and repair tools for show: patch kit, tire irons, hex wrenches, Y-wrench, electrical tape, 15 mm wrench, rag.
- 3 tubes of glue/10 students
- 1-2 patches per 3 students
- 2 tire irons per/rim with tire
- 1 pump/5 students
- Sandpaper
- Inner tubes (at least 1 per 3 students)
- Rims/tires (optional)
- Chalk or light colored marker
- Pump (normally on bike)

Introduction

This lesson provides an opportunity to review and discuss the first ride and prepare for the second step of bicycle riding, left turns. In this lesson students start a two-part discussion about route types and routes selection. Teachers should introduce issues around identifying safe routes to schools or other locations. The route discussion will vary by community, as rural, urban and suburban communities all have different road types and connectivity of lower-traffic bicycle and walking routes.

Route Finding and Selection – Part I

What: A discussion of street types and route selection.

This discussion provides an introduction to selecting safe streets to travel for students. Route choice is an important aspect to safety and quality of the trip experience. *(This lesson is split into two parts, part two is found in Lesson 10.)*

Show students some pictures of road types. Ask students what types of streets they enjoy riding or walking on. Where there any that didn't feel safe? Discuss why or why not. This could begin a conversation about riding environments – the road, sidewalk, or bike path – street types, and associated perceived and actual dangers.

Discuss the issues presented by riding on the street, sidewalk, and a multi-use path. Identify the issues and barriers for riding on these different locations. What are the students' preferences?

Discuss the differences in street types and the students' preferences about street types. Maybe they don't walk and bike on the streets at all, why? Also, discuss the characteristics of streets that they prefer, e.g., a street that they can play on versus one that they can't, or streets they feel comfortable riding on. Connect this to talking about issues for walking in these areas as well. What are their preferences? Why?

- Car volume
- Car speed
- Sidewalks / bike lanes
- Places where cars can't go – cut-throughs, paths, multiuse trails, and other innovative routes.

If we identify the street types that we like, is it possible to stay on those types of streets when traveling to school or a friend's house? Consider these factors in route selection:

- Where am I and where do I want to go?
- Am I on streets that I like most of the time?
- Can I avoid crossing an impossible freeway or intersection?
- Are the streets efficient or will they get me to my destination fast?

Hold a discussion about whether travel time is important for most kids, including:

- Safety
- Scenic
- Speed – is the route fast and direct?
- Fun

For example, don't students often wait around for their parents to pick them up, or don't many kids get dropped at school early? Is time efficiency as important to students as adults? How fast do you go on your bike? How far do you live from school?

Do the math to calculate how long it would take to ride from home to school on your bike, figure 10-12 MPH average. If a walkable distance, how long would it take to walk if averaging 2 MPH? What are the other issues that prevent students from cycling and walking?

WHERE DO YOU RIDE?

Rural road


Urban road


Bike trail


Neighborhood road

Tell students to think about this on the walkabout and future rides. There are opportunities to discuss this after the walkabout and later in Lesson 10.

Possible Homework: Have students discuss bicycling and walking routes with their parents. Ask parents to take the survey and discuss their perspectives on safety with the students. Do the parent and student perspectives match up? Can you find out the distance from your home to school? Use the odometer, pedometer (and measure strides) or Mapquest online (www.mapquest.com). *Send home walkability and bikeability checklist (online).*

Bike & Walking Gear

What: Discussion and demonstration of proper gear for safe and easy bicycling and walking. This discussion provides students with ideas on how to increase their safety, comfort, and visibility as they bike and walk.

Materials:

- Lighting — headlight, taillight, reflectors, reflective vests, and leg straps
- Commuting — bike rack, panniers, backpack, horn or bell
- Rain — fenders, rain pants, jacket, gloves
- One Bicycle — equipped with many of the above items
- Commuting — Bicycling and Walking to School

Riding and walking to school is fun and great exercise. However proper gear will make it more enjoyable and practical. A backpack, for example, will help you carry your lunch, gym clothes and books while other gear helps increase visibility and keeps you dry and warm. (Teachers, do you ride to work? Tell the story.)

VISIBILITY

It is important that other vehicle drivers are able to see you. Riding and walking in predictable places is a key to increasing visibility, however clothing and gear also are important.

Question: How do these things increase visibility?

Discussion: Discuss Line of Sight and road position or positioning at an intersection so that bicyclists are seen and can see oncoming traffic. Add diagrams/ overheads of road positioning and line of sight around a curve, and line of sight at an intersection from the stop line with cars blocking the view vs. moving forward in front of the cars.

Students should generally avoid riding after dark, however, if you do ride after dark, lights and reflectors are required by law. You must use a white front light and rear red reflector, and preferably rear red light (laws vary by state.) Reflective clothing or reflective tape on your bike or backpack is good supplements.

Bright clothing and helmets increase visibility in low-light conditions. Bright clothing is also recommended when riding on rural roads. Retro reflective tape increases visibility at night (bright clothing does not.)

Statistic: Two out of every three car-bike crashes are at during the night or during low light conditions.

HAULING GEAR

The key to safely hauling gear is to have both hands free to steer the bike. Backpacks are an excellent option for both bicycling and walking. Fanny packs, seat bags or handlebar bags can also be used. Special bags, called panniers, clip on to a bike rack and drastically reduce the stress on the back, shoulders,

Proper gear makes cycling more fun.

and neck. Panniers come in waterproof materials, but these bags can be expensive. Use bungee cords to strap heavier books to rear racks. Never carry anything slung over the handlebars, because it interferes with your ability to steer.

TRAVELING IN THE RAIN / COLD

Your community may get rainy or cold in the winter. If you walk and bike during these conditions, make sure to have adequate rain gear or winter clothes. For cyclists, a good jacket and fenders are standard for keeping dry. Rubber or plastic jackets are inexpensive. Other equipment includes rain pants, boots, hats, and gloves. Parking your bike underneath a covered shelter is always helpful. Layering can protect you from the cold. Put on layers of wool, or high-tech clothing. Winter hats and gloves are important for keeping warm.

LOCKING YOUR BIKE

Make sure you have a safe way to carry your lock (not on the handlebars!). Lock wheels and frame together to something sturdy like a bike rack. If your school does not provide a bike rack, signposts, chain-link fences and parking meters are good options.

Bike Parts and Components

What: Activity that teaches bicycle parts and components. This optional activity provides a working knowledge of bicycle parts and components so that students begin

HOW TO U-LOCK YOUR BIKE

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

FRONT WHEEL

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

REAR WHEEL

- Place the U-lock around the seat tube and inner rim of the wheel or seat-stay and wheel;
- Place the U-lock so the ends are through the bike and past the pole or rack;
- Lock the U-lock. *U-lock manufacturers say that minimizing excess room in the lock and facing the keyhole downward are ways to decrease breakability of a U-lock.

BOTH WHEELS

The front wheel can easily be removed and locked with the rear wheel using a u-lock. Or, bring a cable and thread it through the wheels and lock it with a u-lock.

to understand that a bicycle is a simple machine that can be altered and fixed.

Materials:
- Handout: Bike Parts (Appendix)
- Pencils
- A bicycle: to show what you are talking about for this lesson.

1. **What is the Frame? What are Parts/Components?** The bike frame is the section of your bike that is fused together, the body of the bike. Bike parts and components include all other parts (example — forks, wheels, pedals, crank arms) and those adjustable components (example — brake levers, shifters, derailleurs).
2. **Distribute the bike parts handout.** Have students identify 20 bicycle parts. Students should start the sheet on their own. Allow students to look at and touch the real bikes and bike parts. After a few minutes, allow students to work together.
3. **Present the list.** After about five minutes (or when students have completed the sheet), have five or so students point out and announce each part/component of the bike to the class.
4. **The instructor reiterates the parts.**
5. **The instructor can drill the class** by quickly pointing to bike parts and have the class call out the answer.

Discussion: The bicycle is a simple machine with many parts and components. It is easily altered and repaired. The parts and components can be changed, upgraded, or replaced if broken. Even a bike frame can be repaired if cracked, but sometimes it is more economical to purchase a new one. Show examples of bike parts that have been swapped out or changed.

Secure Bicycle Locking

What: This demonstration introduces students to properly locking a bike and lock types so that they can select and use an appropriate lock for their bike.

Materials:
- U-lock
- Cable lock
- Padlock
- Bicycle

Note: This activity may be best done at the end of an on-bike class when students are putting their bikes

HOW TO FIX A FLAT

1. Use tire irons to take one side of the tire off of the rim. It is not necessary to take the whole tire off the rim.
2. Pull the tube out from between the tire and rim, start with the side opposite the air valve.
3. Remove the tube and pull out the air valve.
4. Find the hole. Finding the hole is usually easy. Pump up the tube and glide your hand along tube, feeling for air rushing out. If you can't feel it, run the tube past your face, listen and feel for the air. Mark the hole with a marker or chalk.
5. Sand the hole and apply glue over the hole. Apply enough glue so the entire surface of the patch will come into contact with glue.
6. Wait for the glue to dry because the glue gets stickier as it dries. Five minutes is recommended, but blowing on the glue will help it dry it faster.
7. Apply patch over entire hole and press it on firmly.
8. Check the patch by pumping up the tire and listening for sounds. If it holds, release the air (not all of the way) and replace tube on rim.
9. To replace the tube on the rim, first put the valve stem into the valve hole. Start from the valve hole and push the tube in between the rim and tire, making sure it is not twisted.
10. Put the tire back on the rim (over the tube) and pump it up. Sometimes tires are difficult to mount on the rim. If so, start at one end of the wheel and work the wire bead up on both sides of the wheel towards the top. Hold the wheel at your waist and move away from your body, moving the slack up the tire and eventually rolling the tire onto the top of the rim.
11. Put the wheel back onto the bike.

back on the bike racks. Instructors may wait at the bike rack before school to help cyclists lock their bikes.

Discuss and Demonstrate:

1. Bikes must be parked and locked properly to minimize theft and vandalism. Locks can vary in type but should be sturdy. U-locks are the most secure, chain or cable combination locks are less secure.
2. Demonstrate locking procedures in class or take the class to the school bike racks, (this can be done at the end of class) and demonstrate.

'KEYS' TO LOCKING:

- Lock or remove anything that you don't want stolen: seats, lights, and wheels are common items that are stolen.
- Make sure to lock frame, not just your wheel.
- Lock to a stable fixed structure.
- Make sure to keep your key on a lanyard or keychain that won't get lost.

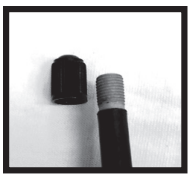
Fixing A Flat Tire

What: Activity that allows students to apply a patch to a punctured bicycle tube. This activity shows students that they can repair their bicycle and specifically that patching a tire is relatively easy.

Materials:

- Small Tool bag and repair tools for show: patch kit, tire irons, hex wrenches, Y-wrench, electrical tape, 15 mm wrench, rag.
- 3 tubes of glue/10 students
- 1-2 patches per 3 students
- 2 tire irons per/rim with tire
- 1 pump/5 students
- Sandpaper
- Inner tubes (at least 1 per 3 students)
- Rims/tires (optional)
- Chalk or light colored marker
- Pump (normally on bike)

Note: Use extra inner tubes and rims for this lesson. Old tubes can be acquired from bike shops. This activity works well in student groups of three.



SCHRADER VALVE

PRESTA VALVE

Demonstration: We are now going to fix flat tires. It is impossible to fix a flat on the road if you don't carry tools and patching equipment with you. Try to carry some basic tools in case of emergency (show them small tool bag), especially when biking long distances from home. Review potential road (surface) hazards that cause flats. Glass and nails are very common. Snakebite flats are common. A snakebite flat often happens when a tire hits a curb, or other edge, and pinches the tube between the tire and rim, resulting in two small holes.

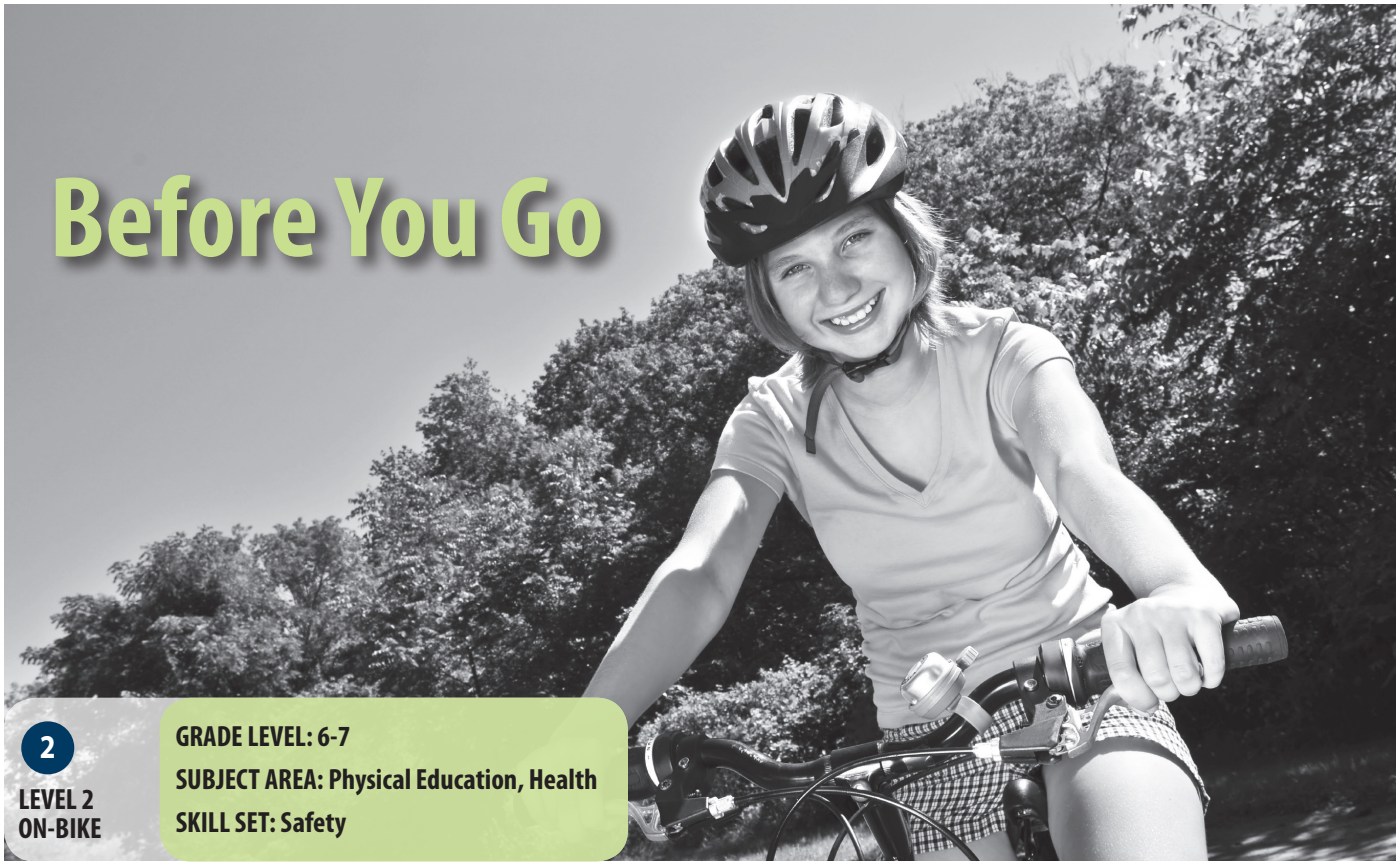
Demonstrate, or have student demonstrate, repairing a flat. (If a student demonstrates, stress that they should talk loudly).

IN PREPARATION FOR LESSON 4

If you know the ABC Quick Check, consider doing an overview of the ABC Quick Check at the end of Lesson 3. The ABC Quick Check is an essential bicycle safety tool.

Some students cannot properly ride or balance a bike. Teachers will want to identify these students; perhaps they can inform the teacher in private after class. Students that do not ride can learn with an adult volunteer that will work with them. It's an amazing accomplishment.

Note: Please do the Post-test/ Teacher Evaluation now if you are done (meaning you are only teaching Level 1). The post-test and teacher evaluation can be found in the appendix.



Before You Go

2
LEVEL 2
ON-BIKE

GRADE LEVEL: 6-7
SUBJECT AREA: Physical Education, Health
SKILL SET: Safety

Purpose:

Demonstrates proper bicycle sizing, seat height, bicycle maintenance, and introduces on-bike skills

Activities in this Lesson:

- Helmet and Clothing Check
- Proper fit of Bicycles
- ABC Quick Check
- Starting, Stopping, Hand signals, and Slalom
- Riding with one hand
- Learning to look back
- Looking back and riding forward
- Gearing
- Snail race
- Chaos Box
- Red Light / Green Light - Quick Stop
- Railroad tracks
- Rock dodge
- Quick turn

Materials

- Bicycles and helmets
- Rubber bands (for pant legs)
- Sturdy shoes; suitable clothing
- Wrenches: Crescent and Allen assorted sizes
- Grease
- Riding Course / pavement
- Bicycle Toolkit (see list)
- Pump
- Bicycle Maintenance Check sheet (Appendix)
- Disc cones
- Large cones
- Spray sidewalk chalk
- Red / Green cards or plastic circles (optional)
- eight thin, narrow boards for mock train tracks (optional)
- two sponges (optional)

Background

Bicycles are required to run this lesson. Teachers can either provide bikes or require that students bring bikes. If teachers provide bikes, they should still encourage students to bring and ride their own bicycles. However, students should not be permitted to ride their own bicycles if they are in poor working condition.

Finding the space to store bicycles can be a problem. Teachers are encouraged to find secure storage for student and program bikes. A locker room, storage closet, or classrooms are good substitutes for high-quality bicycle racks. Teachers should coordinate with students who rode to school — students should either retrieve bikes prior to class or have a few minutes to do so on the way between the classroom and bicycle practice destination.

Teachers can ask bicycle mechanics or other knowledgeable people to volunteer during this lesson to assist with the bike fit and safety check. This is a good opportunity to work with a National Bicycle Dealers Association member shop who is familiar with the League's Youth Instructor program.

Introduction

This is the first on-bike lesson. The goal of the lesson is to build student knowledge of bicycle fit, condition, and build bicycle handling skills. This lesson is best run completely outside. The on-bike portion of the lesson is best held on a long blacktop area. A grass field is a second option.

Basic Riding Course Description

All of the skill-building bicycling activities in this lesson can be run on the Basic Riding Course (see diagram 4.1). The Basic Riding Course is best created on pavement. The course should have two 12-foot lanes with a center line to create four 6-foot chutes, 100 to 150-feet long. Use small disc cones or chalk to outline the course; place chalk lines for stopping points at the 40- and 80-foot mark. These lines will serve as places to put stop signs, places to look back from, and the competition area for the Snail Race. On either side of the course, teachers should put small markers for a slalom activity. Students can do the slalom course on the way back to the waiting line at the start of the main lanes. Ideally, the course is long enough that students are not cued up at the starting line.

Diagram 4.1: Basic Riding Course

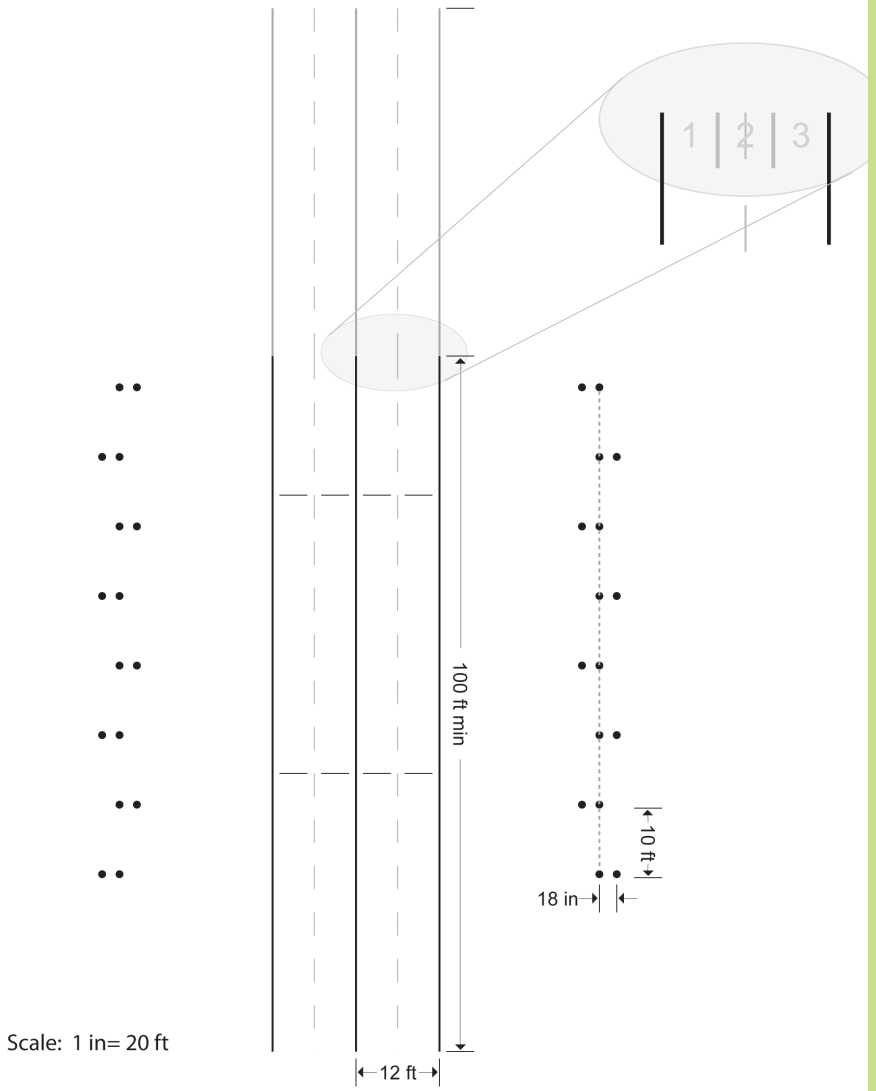


DIAGRAM 4.1: BASIC RIDING COURSE

Start the riding activities using two 12-foot lanes. Write 1, 2, and 3 on the pavement at the beginning and end of the lanes (see diagram.) Each student will practice looking back on the 12-foot lanes. A more advanced practice is to have students ride in Position 3, look back, and signal merge to Position 1 if the lane is clear.

NOTE: For all activities, instructors should first explain and demonstrate the proper techniques before asking students to try it. Instructors find that having students ride bicycles early in the program increases their interest.

Helmet and Clothing Check

What: Review the helmet check and introduce clothing check. The helmet and clothing check is an activity to re-emphasize the important of the helmet and how to use it, and to get geared-up properly to ride.

Materials:

- Helmets for each student
- Rubber bands or straps for pant legs (optional)
- Sample bags for carrying gear – backpacks, seatpacks, handlebar bags, etc.
- NOTE: Students should put helmets on at the start of each lesson, prior to retrieving bicycles.

Discuss:

- Briefly review proper helmet fit. Have students help each

other. Remember the Eyes, Ears, Mouth check. Do this prior to each on-bike lesson.
- Discuss clothing with students. Shoelaces must be tied and long ones tucked into the outsides of shoes so they don't get caught in the chain. Pant legs should be rolled up, tucked into socks or restrained with a rubber band to avoid soiling from contact with the chain. If laces or pants get caught in the chain, the rider should stop pedaling, slow and stop.
- Discuss fingerless bicycle gloves. Gloves aid in comfort and protect hands from road rash in the event of a fall. Protective eyewear, glasses or sunglasses are also important to prevent injury to eyes and strain from sunlight.
- Sturdy shoes with stiff soles are preferable for bicycling.
- Discuss carrying cargo. A comfortable and safe way to carry books, personal items and locks is in a backpack. Never carry anything slung over the handlebars—this can interfere with braking and steering. Never let backpack straps hang down where they can interfere with brakes.

Proper Fit of Bicycles

What: This is an activity to ensure that students use correctly sized bicycles.

Materials:
- Wrenches, for seat adjustments (adjustable and Allen (hex) wrenches)
- Grease
- Chain lube

Tips:
- The Bike fit and ABC Quick Check can be conducted in the classroom, prior to going outside.
- If the instructor provides bicycles, sort the fleet into small, medium, and large. Have students line up and select the bikes in size order, smaller students first. Sharing bikes for the first few on-bike lessons works, because only a portion of the students are riding at any given time.

Riding a bike that fits well is important for safety. Handling, pedaling efficiency, pedaling speed, and the ability to avoid striking the top tube when dismounting quickly are all affected by bicycling sizing. Students should not ride a bike that is too big, especially one that they can't stand over, even if the student may eventually "grow into the bike." Cyclists should avoid riding bikes that are too small, even though it is less dangerous, because the inefficiencies can be great.

DEMONSTRATE PROPER FIT

Have students form a semicircle with instructor in center.
- ***Stand over the bicycle*** **–** the student should be able to stand over the bicycle with two to four inches over the top tube. For bicycles with downward slanting top tubes, think of the standover height as if the top tube were level.
- ***Seat Height*** **–** While sitting on the bicycle, students should be able to place their tip-toes (or balls of feet for less skilled riders) on the ground. If the feet are flat on the ground, the seat is too low.
- ***Seat Height 2*** **–** while sitting on the seat, students should (ask students to hold each-other up on the bicycle) place the ball of their foot on the pedal when it is closest to the ground. The student's leg should be almost fully extended, with a slight bend at the knee. Raise or lower the seat post to get to the desired position. If a student wants their feet completely flat on the ground, this low saddle position is not dangerous, however it is much less efficient and can lead to knee pain on long rides.

TIP: Students often have a lot of energy each day when they get on the bikes. Consider allowing them to take a few laps around a field or school parking lot to get their energy out before proceeding with these lesson plans.

TO ADJUST THE SEAT HEIGHT
- ***Quick release seatposts:*** pull the quick-release handle to the open position, and slide the seatpost up or down; make sure it is aligned with the frame. Retighten the quick release by holding the adjusting nut and turning the lever counterclockwise, and then pushing the lever down to the "closed" position. Make sure the quick-release is tight and saddle is lined up with the frame.
- ***Nut and bolt seats:*** loosen the nut with a wrench (counterclockwise) and adjust the seat. Retighten the nut.
- ***All bicycles:*** check the minimum insertion mark on the seatpost, or pull the seatpost all the way out before adjusting it, to make sure the insertion depth is safe (at least 2 inches). If the seatpost is rusty, coat the inside of the seat tube with grease before reinserting the seatpost.

ABC Quick Check

What: Conduct an ABC Quick Check to ensure that bicycles are in good working order. The ABC Quick Check is an activity that provides students with an easy way to remember the basics of checking a bicycle for road-worthiness.

Materials:

- Bicycle tool kit: provide sheet, diagram, or some reference with list of tools.
- Floor pump with gauge
- Bicycle maintenance check sheet (Appendix)

Discussion topic: An ABC Quick Check is a quick procedure to see if the bicycle is in good operating condition. Bicyclists do this each time we ride. As part of the bike check, we will look over the basic parts of the bicycle. A tune-up is a bigger maintenance job that helps keep your bike in good long-term condition.

ABC QUICK CHECK:
A – Air
B – Brakes
C – Chain and Cranks
Quick – seat and wheel quick releases
Check – check over the bike, stem.

In our ABC Quick Check, we will determine whether our bicycles are in good operating condition, or if they need repairing or adjusting.

ABC QUICK CHECK SHEET OR BOOK MARK

Students stand in a semicircle around the instructor to the right (chain side) of their bicycle. Students can pair up if there are not enough bicycles for every student.

We will check the chain, tires, seat, handlebars, and brakes. It is a good idea to check the pedals and essential to ensure that the wheels are on securely (especially for bikes

with quick releases.) Below is a suggested order.

- Air: Students should check the air pressure of their front and rear tires by pressing down on the tread with their thumb. Students should not be able to indent the tire much, if at all. Find the inflation rating on the sidewall of the tire and inflate to the pressure indicated. Then have the students do the thumb check again so they can feel what it is like when at proper pressure.
- Brakes: Students stand over their bikes and squeeze the brakes with two fingers and leave the other two fingers on the handlebars. There should be at least a thumb's width of distance between the brake levers and the handlebars when squeezing the levers. Next, students should sit on the saddle or lean heavily on the handlebars, pushing the bike forward and applying both brakes. The brakes must stop the wheels from turning. Finally, get off the bicycle and look closely at the brake pads. While braking, the brake pads should be aligned with the rim braking surface and not touch the tire as it spins. Also check the pads for wear; most brake pads have an indicator line. Make sure the pads have not worn below this point. Replace pads, or recommend the bike be taken to a bike shop for repair. You may want to have a set of new brake pads and a set of worn pads to show.
- Chain / Cranks: Pick up the rear wheel and rotate the pedals. Students should make sure that the chain is moving smoothly and is not too rusty. Have chain lube available for dry chains. While doing this, students should test the cranks by pushing and pulling on both crank arms. Any play or wiggle indicates looseness. Never ride on lose cranks. Have them tightened at a bike shop.
- Quick Releases: seat and wheels: Check the tightness of the saddle by grabbing the nose and tail and trying to rotate it from side to side. If the seat moves, tighten the seatpost clamp bolt or quick-release lever. Students should check the quick releases of the wheels to make sure they are locked down tight (that is, they should not be easily moved).
- Check: Check the general condition of the bicycle. Ride it. The stem tightness should also be checked. To do this, have students stand in front of the bicycle and squeeze the front tire with their knees. They should try to turn the handlebars while preventing the wheel from steering. If the handlebars are tight, students will feel the pressure of the tire on their legs and the handlebars will not turn, or will be very hard to turn. If the handlebars turn while the wheel stays straight, tighten the stem bolt.

TUNE-UP

INCLUDES:

- **cleaning the bicycle**
- **readjusting (repairing) the brakes**
- **tightening the pedals**
- **"truing" the wheels (making them round)**
- **readjusting the derailleur**
- **taking apart and cleaning the hubs and headset (sometimes).**

A tune-up usually requires taking the bike to a shop. Bicyclists who ride a lot will do a big tune-up about twice a year. We might need it less often, probably once a year.

Unsafe or poorly maintained bikes, such as bike without brakes, can be dangerous. Bicycles that are safe but not working efficiently may be difficult to ride and go slower. A small problem often gets worse and turns to be more costly if not fixed as soon as it is identified.

If students have any problems — rusted chain, loose seat, spokes or pedals, flat tire, wobbling wheels or poor brakes — these problems must be solved before the students ride the bike. Students with problems should go to the Fixing stations that teachers have set up, e.g., pumping station in one corner, brake adjustment in another corner.

SETTING UP FIXING STATIONS

Set up fixing stations to help repair mechanical problems. An adult or older student who can quickly make the repair should man each station. Volunteer bike mechanics, League Cycling Instructors, or other knowledgeable adults can help. If the mechanical problems are too severe to correct in school, the bicycle should not be used until repaired. Encourage the student to take the bicycle in for repairs or arrange for a volunteer to help you. Repair clinics may be needed for students that need more major bicycle repair. Send home a list of bike shops as a reference for parents.

Some minor repair of students' bicycles may be performed in the class or after school with a volunteer mechanic. Teachers may have their own tools, or the volunteer mechanic may bring tools and a bike stand. Bicycles with problems such as a rusty chain or wobbly rims are not very dangerous and can be ridden, but should eventually be repaired. Teachers should not let their students ride with: bulgy tires (need new tire); loose pedals (tighten or take to bike shop); flat tires (patch hole, inflate); loose handlebars (tighten bolts that secure them); wheels that are not securely attached (tighten quick release or axle nuts); poor brakes (take to bike shop); wheels that are improperly positioned in the dropouts (realign wheel in dropouts); or a loose seat (tighten quick release/nuts/bolts).

TESTING COASTER BRAKES

Stand at the left side of the bicycle. Position the left pedal so that it is towards the rear of the bike, about 45 degrees below the horizontal position. With the left foot, step hard on the left pedal and push the bike forward. If the rear wheel skids, the brake is okay; if the wheel turns, the brake is no good. Next, check that the brake arm is firmly bolted to the left chainstay. If the chain is too loose, it can come off and then the bicycle will have no brake. Repositioning the rear wheel in the dropouts will tighten the chain.

NOTE: A coaster brake requires nearly twice the usual stopping distance unless the bicycle also has a front handbrake. Students, especially those over 11, should preferably learn to operate hand brakes.

Starting, Stopping, Hand Signals, and Slalom

What: On-bike exercises to teach proper techniques for starting and stopping. Students return via a slalom course.

This activity ensures that students can perform essential safety techniques such as start and stop quickly and effectively. Students practice bike-handling skills.

Materials:

- Stop signs (4) - see Resources Guide
- Disc cones
- Large cones
- Spray sidewalk chalk

1. Discuss "stopping technique," "when to stop" and starting technique.
2. Line students up in four lines, single file at each lane. Explain activity.
3. Review hand signals (see below). Remind students to brake with both hands and not to overuse the front brake, or else they could flip over their handlebars.
4. Have four students go at one time, one from each line. Two students will turn left and two will turn right at the end of the course, finishing with the slalom course.
5. Have each participant give the "stop" signal, brake with both brakes, stop, straddle their bike,

then look left, right and left to practice looking for traffic.

6. When the way is clear, students may proceed. Having reached the end of the course, students should signal their turn, place both hands back on the handlebars, complete the turn (left two lanes go left and right two lanes go right) and ride back to their start line. Students should maneuver through the slalom course on their way back to the start line. If there is room, have students ride extra distance, past the starting line of the activity, so they get more physical activity and wait in line for less time.
7. Have students go through the course once or more, until skills are mastered.

HAND SIGNALS

Demonstrate and practice hand signals with the students, teaching one or both of the ways to make a right-turn signal. When demonstrating, turn your back towards the students so that they can imitate you. Once you've instructed them, have them practice and then drill them with increased speed. Students should give verbal calls when stopping and signaling (see sidebar).

There are pros and cons to both styles of turn signals; however, pointing tends to be more intuitive for students and motorists may not always properly perceive a left-handed right turn signal. Either way, it is important for the instructor to ensure that students give firm, clear signals and hold them out for a few seconds; students have a tendency to quickly flash turn signals.

Discussion Idea: Do car drivers have to signal? What happens if they don't? What do car drivers use for turn signals? If the blinkers were out of order, they would have to use their hands. Which turn signal technique would motorists use and why? Do you have to make a right signal the way they have to?

TECHNICALITY

In general bicyclists and all vehicles are required to use signals when turning or stopping. However, bicyclists need both hands to maneuver the bike, especially when braking, and should keep both hands on the handlebars if needed, rather than signaling. An example is braking with both hands while riding down a big hill.

STARTING & STOPPING TECHNIQUES

Stopping a bicycle is not difficult, but there are certain things to know. When stopping a bike with hand brakes, the cyclists should use both the front (left) and back (right) brakes. Students should start out by applying force equally to both brakes, without skidding, increasing braking efficiency. Avoid having students apply the front brake only, because it is easy to flip over the handlebars.

POWER PEDAL - STARTING TECHNIQUE

Once stopped, plan to start again. To start quickly and efficiently, use the Power Pedal technique. Backpedal lightly until one pedal is at the two o'clock position. This is your push-off pedal. Starting from two o'clock will give you good starting acceleration to get across busy intersections and lift your body onto the seat.

Power Pedal Coasting Game - try the one-footed push off to see how far you can travel. Use the Power Pedal technique, have students push hard on the pedal and not pedal again. How far can a student coast?

(Note: it is not possible to backpedal a bicycle with a coaster brake. Instead, switch feet after coming to a stop.)

WHEN TO STOP

For children, the most frequent cause of cyclist/automobile crashes is the cyclist's failure to yield right of way. Bicyclists must stop when exiting a driveway or entering any road, and at intersections with stop signs or red lights. After looking both ways and seeing no traffic, or when the light turns green, cyclists may proceed.

Riding With One Hand (activity) 4(2)

What: On-bike exercise to teach one-handed riding skills, students practice and ride in a straight line with one hand on the handlebar. This activity tests and improves student ability to handle and control the bicycle so they can effectively ride with one hand.

Riding with one hand is an important skill for cyclists. One-handed cycling is most often used when signaling a turn or when drinking from a water bottle. However, one-handed riding is useful in many other ways, like when looking back. (Looking back is taught next.)

Riding with one hand

1. Students can stay in their waiting lines as in the stopping exercise. One student from each even or odd line should go at a time (thus two students go simultaneously). Tell students to keep both hands on the handlebars at the start.
2. Students ride in a straight line for 50-60 feet with their right hand on the handlebar and left hand on their hip without stopping or weaving out of their lane. Teachers should stress the need for students to maintain control and not ride too fast.
3. Once one group of students has completed half of the course, the next group should go.
4. Once done, students should peel off and ride back through the slalom course to the starting line. Emphasize that they should signal their turn and complete the turn with both hands on the handlebar. If they want an added challenge, they should try riding the slalom course with one hand.
5. Repeat a few times.

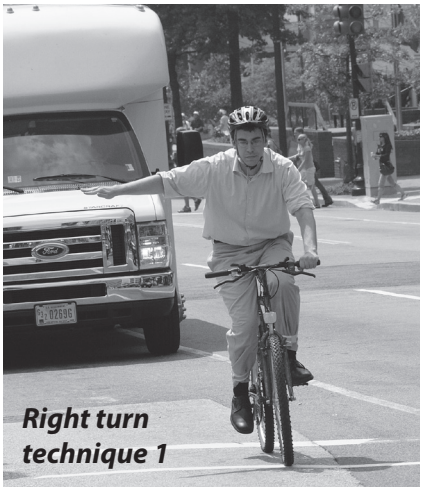
Note: If students do not successfully complete the exercise, have them try it again. Students may fear riding with one hand. If so, have them take the hand off for as long as possible with it near the handle bar (not on the hip) and try to increase the length of time riding with one hand. During the exercise, have students practice verbally warning their classmates when they are "stopping, slowing, passing," etc.

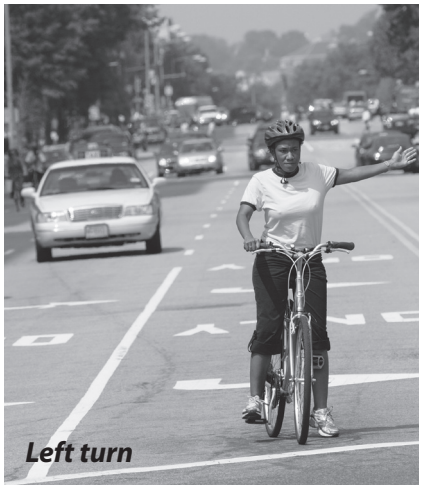
HAND SIGNALS

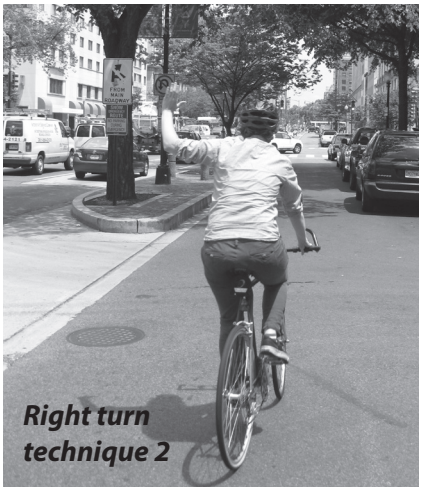
Many youth have difficulty employing quality hand signals. There are two ways to teach hand signals:

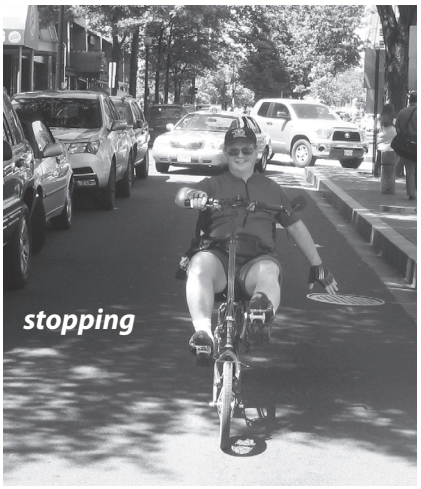
Point Technique: Point in the direction you are going, requiring the use of left arm for left turns, right arm for right turns.

Left-arm Technique: Use your left arm for all three signals.


Right turn technique 1


Left turn


Right turn technique 2


stopping

Learning to Look Back: Riding With One Hand

What: A discussion and non-moving practice of looking back (scanning) while riding with one hand.

STATIONARY LOOKING BACK

Looking back is an essential skill that serves a number of purposes. Bicyclists generally ride on the right side of the street, in Position 3. Cyclists move to Position 1 before taking a left-hand turn. Bicyclists will also have to move to Position 2 to avoid hazards and go through narrow intersections. In both of these instances, cyclists must move farther into the lane of traffic and therefore look back to check for oncoming cars.

Looking back is used in these cases to:

- Check for traffic approaching from the rear;
- Provide a visual cue to motorists that the cyclist might change path; and
- Make eye contact with motorists approaching from the rear, followed by a hand-signal to indicate intention.

This curriculum teaches looking back with the left-hand on the hip. The following activities demonstrate the benefits of using one hand and allow students to practice looking back while riding with one hand.

CHECK FOR APPROACHING TRAFFIC

Before moving into the lane of traffic, cyclists must look back to gauge whether the travel lane from behind is clear of traffic. The road must be clear of cars before moving into the travel lane.

VISUAL CUES

Visual cues are an important aspect of predictability. Like a hand signal, looking back is a visual cue to motorists that a cyclist may want to alter their course, such as transitioning to Position 1 for a left-hand turn.

Demonstration: Motorists often fail to see a quick scan when the cyclist keeps both hands on the handlebars. Looking back while placing one-hand on the hip is considerably more visible to motorists, it makes a cyclist more upright. The significant change of body position is a visual indication that the rider may want to change course. People see a face quickly, so facing the driver — even for a second — will draw attention faster.

EYE CONTACT AND HAND SIGNALS

While looking back a cyclist should make eye contact with a motorist approaching from behind. Once engaging the driver, use a hand signal to clearly indicate the desire to merge with traffic. Signaling is more easily done while riding with the left-hand on the hip. SCAN FIRST AND THEN SIGNAL. A signal without a scan may cause a driver to slam on his brakes. Only indicate a move when you have scanned first to check and be sure that it is safe to do so.

Activity: Looking back first requires the ability to ride in a straight line. While riding, students will look back and attempt to maintain a straight path. This is a difficult maneuver because a cyclist's hands tend to turn with the turning of the torso, swerving the bicycle in response. Students should stand over their top tube. Hold onto the handlebars with both hands.

1. Keep both hands on the handlebars and try looking over your left shoulder by just turning your neck. How far can you see?
2. Next bend your elbows and pivot to look over your left shoulder. Now how far can you see? Farther but also look at your handlebars and front wheel. Often they will get turned and you will swerve into traffic.
3. Lastly, put your left hand on your hip and look over your shoulder, you can see a lot and your handlebars will usually stay straighter. Also it is much easier to employ a hand signal / gesture while looking back with one hand off the handlebars.

Tip: Have the students stand straddling their bikes. The instructor should ride from the front to the rear of the student group. Students can practice looking back by watching the instructor.

Looking Back & Riding

What: Activity where students ride in a straight line and look back to simulate checking for traffic. Looking back is a necessary skill to riding a bicycle on the street.

Students will be asked to demonstrate looking back while riding on the practice course. Student will ride with their right hand on the handlebar and left hand on their hip. As they ride past the instructor, they will look back over their left shoulder at the instructor. The instructor will hold up one or two hands and the student will call out the corresponding number. Students should be asked to use controlled but steady speed. They can

coast or pedal while they scan and look. Instructor will look for both eyes when the student turns.

Use altered pavement riding course, allowing only two riders, not four, to go at once. See background at the front on this lesson for more information.

Tip: There are various techniques that a teacher can use to test students' ability to look back and process information, such as holding up arms, colors, pictures, etc. The goal of this exercise is to have students look back for as short a time as possible and still be able to interpret what they see, while the instructor increases the complexity of what the students are seeing.

1. Two students will go at a time. They will ride the line between lanes 1 and 2 or the line between lanes 3 and 4.
2. Cyclists will ride one-handed and in a straight line past instructors.
3. Students look back once they pass a designated mark on the course, about 50' past where the instructor will stand (or the instructor can call out "look back" although this is unlikely to happen on the road.)
4. The instructor holds up the arms / flash cards. The student calls back what they see.
5. Students should then signal, peel back, and return to starting line.
6. This is one of the most important and difficult skills; therefore the activity should be repeated numerous times.

ACTIVITY FOR ADDITIONAL SKILL BUILDING

After students have successfully demonstrated the ability to look back, consider having them simulate moving from Position 3 to Position 1.

Looking back to the left is used much more frequently than looking back to the right. However there are times when cyclists will have to look back to the right, and therefore it can be practiced as an advanced skill, not essential to this course.

1. Simulate a travel lane by drawing positions 1, 2, and 3 on the blacktop with sidewalk chalk. Lanes 1 and 2 will be one travel lane, and lanes 3 and 4 another.
2. Have students start in position "3", or right side of each combined lane.
3. Students should look back with the goal of moving to position "1" in preparation for a left turn. Instructors hold up one of two cards, a car card or blank card. If the students see the car card they say "car back" and continue riding in position 3, if they see a blank card they should signal and move to position 1.
4. Students take a left turn at the end of the course.
5. Explain to students that this is a preparation for looking back in traffic. In traffic, when a car is approaching from the rear, they would slow down until the cars passed and then cross into position 1. If there is a constant flow of cars students can use another left-turn technique (see Lesson 6) or stop and wait for the cars to pass.

Note:

1. Students ride at different speeds. If you hold up 1 arm for the first rider, the slower rider may see it too. Change the number, or sign, as the second rider passes to make them look back too.
2. Students who are not comfortable looking back with one hand, or during situations where one-handed riding is difficult, should keep both hands on the handlebars.
3. Students that lack the skill to look back must stop riding and move to the side to look back for traffic.

Gearing

What: Discussion / on-bike activity that teaches the use of bicycle gears. Bicycle gears and shifting techniques are important aspects to efficient bicycling, especially cycling long distances.

Discussion: How many people live on a hill, like to go fast, or have to go up hills when riding their bikes? Gear shifting allows a cyclist to adjust the difficulty of their pedaling, for climbing hills and going faster down them.

- Most bicycles have more than one gear.
- Lower gears are easier to pedal and often used when traveling at slow speeds or when going up hills. It is a good idea to get into lower gears when you slow down so that you can start quickly and easily. The position of the chain is a visual cue telling you what gear you are in. If the chain is closer to the wheel, you are in a lower gear.
- Higher gears provide more resistance while pedaling and allow cyclists to travel faster, especially when going down hills. The farther the chain moves from the wheel and frame, the harder it will be to pedal. (Note: the distance that the chain is from the wheel does not actually determine gear ratios, rather it is a handy visual cue.)
- Shifting gears is easy. Gear shift-

VERBAL COMMUNICATION

Turn signals are a form of communication, and are usually made before maneuvering, when they do not interfere with control of the bicycle. If hand signals are not used, students should practice verbal communication, saying "stopping" or "slowing" instead. The stopping hand signal is often used in-group riding situations so that riders don't run into each other.

Verbal communication is essential for cyclists as they ride in a group, and when interacting with pedestrians or when passing another cyclist. Consider starting early with verbal communication. Here are some common verbal keys:

- "Slowing" / "Stopping"
- "Left turn" / "Right Turn"
- "Passing" / "On your left"
- "Hazard" / or identify the hazard "Glass" (rider also points to hazard)
- "Car back" / "Car up" – tells other cyclists that a car is approaching from a specific direction
- "Rider off"/"Rider on" – indicates you are leaving or entering the ride

ers are used to change gears. The right shifter changes the back gears (smaller increments) and the left shifter changes the front gears (larger increments).

ACTIVITY ONE

1. Standing on the left side of the bike, have one student lift the back of the bicycle by the seat, have another student turn the pedals from the right side, and a third shift the gears.
2. While pedaling, shift the right shifter and watch the rear derailleur and chain move, changing the gear. Have students try the left shifter.
3. Ask students what happened and how it felt to pedal.
4. Have students try shifting without someone pedaling.
5. Ask students what happens. In order to shift the chain and effectively shift gears, you must be pedaling. In fact shifting without pedaling can harm the bike.
6. Vocabulary: Cadence is the rate of pedaling in revolutions per minute. How many pedal revolutions can you do in one minute? What is a comfortable cadence? (70-95 RPMs is recommended)

Low Gear	High Gear
Easy to pedal Slow Uphill	Hard to pedal Fast Downhill

ACTIVITY TWO

1. Students will ride the length of the course and shift the front and rear shifters to see what happens. Students should only shift one gear at a time. Shift down to the lowest gears and up to the highest. What are the differences and how does it feel?
2. Determining an appropriate gear (ratio) for most flat riding. Have a few students set their bikes in different gears, perhaps 1-1, 2-4, and 3-7. Have the class watch as these students pedal around the course and the speed and difficulty at which they pedal. What are the differences? What looks most appropriate? Generally, bicyclists will ride with the chain in the middle chain ring (front gear).
3. Have students finish or stop in a mid gear so it's easy to start again.

Snail Race

What: A slow-speed competition where the last cyclist to finish wins. Bicycling skills, including balance and bicycle control, are important and can be practiced and enhance while riding at low speeds.

1. Make four lines again, using each of the six-foot lanes.
2. At the whistle, have four students begin, racing to a designated mark, 30-50 feet from the start. The last person to cross the finish line without putting a foot down or going out of their lane wins.
3. After all students compete, run another round grouping students by skill level.

Note: It can be difficult to enforce simultaneous starts. Either require a quick start, disqualifying students that wait too long, or try having the students ride up to a designated start line and employ a rolling start.

Chaos Box

What: An activity where students learn the importance of traffic flow and reasons for the order on the streets. Students on bicycles are

asked to ride within a box or circle without crashing or putting their feet down. After a while students may start to ride in a more orderly fashion, a line around the perimeter. This Chaos Box demonstrates the needs for orderly conduct on the streets.

Tip: consider using a basketball court, riding within the 3-point line then later within the foul line box.

Red Light / Green Light

What: An activity where students ride their bike to the game Red Light / Green Light to practice Quick Stopping.

Materials: Red/Green cards or plastic circles (optional)

Students will ride towards an instructor with red and green cards or plastic circles. Teachers will use the red-light when students gain speed and students try to stop quickly. Emergency stops are used in situations when you need to stop fast. This activity will introduce youth to emergency stopping so they may avoid a car, people, or hazards.

Teacher instructions:

1. Discuss stopping, emergency stopping and basic hazard avoidance.
2. Demonstrate stopping distance using three types of stops:
   - Normal stop — when we stop our bikes, we should apply 3 times greater force to the front brake than the back (pull brake lever 3 times harder). Why? Because the front slows us down the fastest!
   - Hard stop with skidding — if we stop by using only the back brake, we tend to skid. It is so easy to skid on a bike with coaster brakes because they only have back brakes.
   - Emergency stop — to stop faster, you have to apply more front brake. The best emergency stop will use a lot of front brake pressure and little back brake pressure. If we skid our back wheel, we are pressing too much on our front brake. ***But, don't apply only front brake or you may flip over your handlebars!*** So be careful. Also, to stop well you must drop your body and shift your weight to the back over the rear wheel.

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

Railroad Tracks

What: On-bike exercise to teach how to cross railroad tracks.
Purpose: Allow students to practice angle to approach tracks.

Materials:

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

RIDING ACTIVITY LAYOUT

Use the course layout from Lesson 5, two 12' lanes. Sixty feet down the course, place two narrow boards parallel to each other at a 45-degree angle to the bicyclists' path.

- Lay the mock railroad tracks at a 45-degree angle to the riding path. Form two lines of students. (This activity will go fast).
- Explain the hazards of railroad tracks and how to avoid them. Explain that a cyclist must control the front tire in order to pull out of tracks or other crashing situations.

TRAIN TRACKS

Railroad tracks are a hazard for bicycles because the tires can get caught in the tracks causing the bicyclist to fall. To avoid this, bicycles must cross railroad tracks at a right angle. So when there are diagonal railroad tracks the bicyclist must do a little swerving to not get caught in the tracks. Important concept — if your front tire gets caught in tracks, or if you hit a big pothole or curb your only chance of not crashing is to keep control of the front wheel. Hold tightly onto the handlebars and try to force yourself out of the tracks by turning your tire sideways to the track, then pedal out! Bringing the students to real tracks during the street rides (if possible) is beneficial for reinforcement.

- Line students up in between the lanes that have railroad tracks. Students will ride down the lanes and turn so they ride perpendicularly over the mock railroad tracks.
- If there is time, students should check over their shoulders before swerving to get perpendicular to the track.
- When students successfully complete the exercise, remove mock railroad tracks and go on to next exercise.

Rock Dodge

What: On-bike activity where students practice avoid rocks and debris in the road.

Purpose: Teach students a hazard avoidance maneuver.

Materials: 2 sponges

RIDING ACTIVITY LAYOUT

Use same layout as in Emergency Stopping. Place sponges at the 80 feet mark in the middle of each lane. Rock dodges are used to avoid hazards on the road that can puncture your tire or make you fall. The need for a dodge will usually occur if you haven't seen the hazard until you are very close to it. This maneuver must be practiced to be effective.

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

ROCK DODGE

The concept behind a rock dodge is that you move your bike not by turning the handlebars but by distributing weight properly on your bike frame.

Demonstrate while holding the bike seat: to avoid a hazard quickly, one must get the bike to swerve quickly. Just before you reach a hazard, you are going to turn your handle bars away from the object (say left) — this forces the rider in the opposite direction, and quickly snap the handle bars back straight — this puts the bicycle under you and around the object. If your rear wheel hits the object it is okay, because it is the loss of control of your front wheel that makes you wipe out. When riding in groups, the first person should point to a rock or other debris on the road so the other cyclists know it is there.

QUICK TURN

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

Quick Turn

What: An on-bike activity teaching students to make quick turns to avoid emergencies.

Purpose: Teach students a hazard avoidance maneuver.

Materials: See Rock Dodge activity

RIDING ACTIVITY LAYOUT

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

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

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

Walking & Crossing the Street

2
LEVEL 2
ON-BIKE

GRADE LEVEL: 4-7
SUBJECT AREA: Intersections
SKILL SET: Safety

Purpose:

Teach walking across the street, including navigating intersections, busy streets, and streets with inadequate facilities.

Activities in this Lesson:

- Walking Across the Street
- Skills: Walking Across the Street
- Dealing with Unsafe Conditions
- Gauging Traffic and Crossing Speeds and Times

Materials

- Pictures of street types and edges
- Chairs
- Megaphone (used on walk)

Background

Walking along and across the street varies based on community conditions. In order to explore these issues, this lesson provides a walking field trip for students to discuss and practice walking along and crossing the street in and around the school. The basic concepts of walking should have been covered in Lesson 2.

Learning pedestrian skills helps students understand safe vehicular cycling skills. Students begin to understand the difference between walkers and bicyclists and that bicyclists have to yield to walkers. Bicyclists will encounter similar threats as walkers, and sometimes bicyclists become walkers (when taking certain types of left turns), so it makes sense to learn pedestrian skills and behaviors.

Teachers that want to discuss route finding can start to do so in this walking lesson.

Introduction

Teachers should have two to four adults for this walking lesson. In selecting a route, teachers should find streets that have a variety of walking conditions including: Traffic signals, stop signs, marked and unmarked crossings, mid-block crossings, sidewalks, no sidewalks, and other issues that might typically be found in the community. Walking across the street is an important concept that will be integrated in the bicycling lessons for the left-hand turns and used during the on-street rides when crossing the busiest of streets.

Walking Across the Street

What: A discussion and activity to teach pedestrian safety and comprehension using an on-street environment. Hold a (short) introductory discussion with the class, discussing the basics of walking safety including interacting with vehicles, crosswalks, pedestrian walk/don't walk signals and strategies such as eye contact and signaling intention to drivers.

Hold a walking field trip to cover and practice all of the strategies and scenarios in depth. It is easier for students to understand specific traffic safety measures when on the street and while confronting actual intersection and crossing situations. To practice proper walking techniques in a real scenario, allow for maximum time on the walking field trip. See introduction to this lesson for types of features that should be visited.

HOW WALKING PERTAINS TO ME

We all walk, where do you like to walk? Where do you walk? Where would you like to walk independently?

Discuss the difference between walking and biking.

As a bicyclist, you are expected to act like and follow the rules for vehicles. However sometimes the situation requires walking and then you are a pedestrian under the law. Or other times you are just walking, and have different rules, including

TEACHING IDEA

Teach multiple vehicle threat in the classroom with a demonstration. Set up two chairs with students sitting in them representing two vehicles going the same way in different lanes. The first student sees you and waves you on, so you start walking. The second doesn't see where you are and drives into you because you too weren't looking. Emphasize stopping at every edge and using parked or stopped cars as a shield.

TURNING MOVEMENTS	WHEN A WALKER CROSSES
SPEEDING	SPEED OF THE CAR WHEN COLLIDING WITH A PEDESTRIAN IS A KEY FACTOR IN DEATH.
NOT STOPPING FOR WALKERS	OFTEN CAR DRIVERS DO NOT SEE WALKERS OR ARE NOT PAYING ATTENTION TO THEM. MAKE EYE CONTACT.
RUNNING RED LIGHTS	PEOPLE IN A RUSH RUN RED LIGHTS. THIS DANGEROUS BEHAVIOR IS ONE REASON WHY IT'S NOT NECESSARILY SAFE TO CROSS SIMPLY BECAUSE THE WALK SIGNAL HAS APPEARED.
TURNING WITHOUT LOOKING FOR WALKERS	MANY CAR DRIVERS ARE NOT LOOKING FOR WALKERS WHEN EXITING A DRIVEWAY. THIS IS A KEY ISSUE TO DISCUSS ON THE WALK.
DISTRACTED DRIVING	MANY DRIVERS ARE TALKING ON PHONES, EATING, DRINKING, AND DOING OTHER ACTIVITIES. IDENTIFY THESE PEOPLE AND THEIR BEHAVIORS WHILE WALKING.

TEACHING IDEA

Use walking in the hallway as an example of walking order (and chaos). If the hallway is filled with people, someone entering the hallway from a classroom must look and find a gap in traffic that they can merge into, or cross. Discuss the difference between bumping into a student and a car.

walking on a sidewalk rather than riding on a road. However many of the activities are the same, e.g., look left, right, and left.

WALKING LAW AND PRACTICE

In most states, cars and bikes must yield the right of way to pedestrians in intersections and when they are crossing the street. Pedestrians are often required or encouraged to cross at intersections or designated crossings. Interestingly, most pedestrian crashes happen at intersections and when crossing the street. Often children are found at fault in pedestrian crashes because they were not visible or they darted into the street. Preadolescents are often hit because they encounter more difficult and complex traffic situations, high speed and high volume traffic.

Most pedestrian traffic fatalities happen when the motorist is traveling at 30 mph or higher. High-speed pedestrian crashes are much more likely to result in death and youth must be alerted to crossing strategies so that they can safety navigate their community and safely reach the new and more distant locations they are traveling to.

CROSSING STRATEGIES: SUCCESSFULLY CROSSING THE STREET

1. Assess your surroundings
   - Assess intersection: What type of intersection are you at and what is the flow? What signs are controlling things — who must stop and why, who is turning? (some examples of signs are on the right)
   - Assess turning hazards
   - Things in our favor
   - Things that are working against us: speed, distracted drivers
2. Develop a strategy depending on the intersection types and our assessment. E.g. – wait for the light and cross; wait for cars to slow down and cross
3. Implement
   - Consider mid-block strategy: If light starts blinking, what will you do? If the second lane of traffic doesn't stop, what will you do?
   - Position Yourself: find the edge and be visible: drivers will not stop until they see you. Some drivers (walkers and bicyclists) are more aware of their surroundings than others. Find the edge

ASSESS YOUR SURROUNDINGS

- **Assess your surroundings.** Look behind you, too – survey your surroundings.
- **Look left, right and left again.** Discuss why we generally focus first and last on the traffic coming from the left (it's the first threat) and then traffic from the right.

Railroad tracks can be dangerous for pedestrians and cyclists

- **Looking around gives you the information required** to assess your safety, hazards, opportunities, and barriers. Practice this while walking.
- **Gauge your hazard:** Traffic speed and distance are factors of the threat of oncoming cars.
- **Walk into safe environments**, use stopped cars, bicyclists, and fixed items as shields: use a parked car as a shield and make yourself visible, use a car stopping for you in the crosswalk as a shield
  - Cross at intersections or crosswalks
  - Discuss the walk signal. Start walking when the signal is white, don't enter the intersection when the signal is blinking red, if there is a pedestrian refuge stop mid-way when the signal is blinking red.
- **Make eye contact.** Make and maintain eye contact with oncoming vehicle drivers. Drivers will only stop if they see you.
- **Use hand gestures.** Hand gestures will signal your intention.
- **Complete your crossing** before returning for something you might have dropped.
- **If there is no sidewalk, walk facing traffic.** You don't have to look back if you are facing traffic. If you are walking with traffic, you have to give shoulder checks to see if cars see you and are clearing you. It is safer to walk with traffic when there is a sidewalk.

Dealing with Unsafe Conditions

What: A discussion about the conditions or factors that may create an unsafe walking environment.

- **Lack of Sidewalks –** walk facing traffic and be extra careful at places where cars may be turning in or emerging from, such as driveways.
- **No Street Crossing –** many walkers are hit not by the first lane of traffic, but by the second, third or fourth. If there is no signalized place to cross the street, find a visible spot, with good sight distance, and make sure you gauge traffic from both directions. Move quickly across the road.
- **Limited Visibility –** many pedestrian crashes result because the walker emerges and drivers do not see them. First find the edge of the roadway, and then walk to the point where car drivers can visibly see you, out from bushes, parked cars, etc. Also wear bright clothes if possible to increase visibility.
- **Parking Lots –** drivers are distracted, driving too fast, backing-up, and visibility is limited. Take care in lots.
- **Driveways –** auto drivers are generally only looking one way when turning right out of a driveway. It's a dangerous spot to cross, make sure the drivers see you. It's also a dangerous place to bike past.

Gauging Traffic and Crossing Speeds and Times

What: An activity where the class stands on the side of the street and counts /estimates how long it will take a car to reach the spot where students want to cross and the amount of time the student will need to cross the street.

In order to properly judge the safety of crossing the street, students must estimate the time that it takes to cross the street and the time it will take for an oncoming car to reach the point where you are crossing the street. At railroad intersections, the speed of trains also has to be considered. Have students count the time it takes for a car to travel a certain distance and how long it takes them to cross the street. How does this vary as we

walk quickly or as the cars are driving faster?

In addition to closing speed, what other threats do fast traveling automobiles pose?

- Takes longer to stop
- The faster an auto is traveling, the more likely it will injure or kill a person.

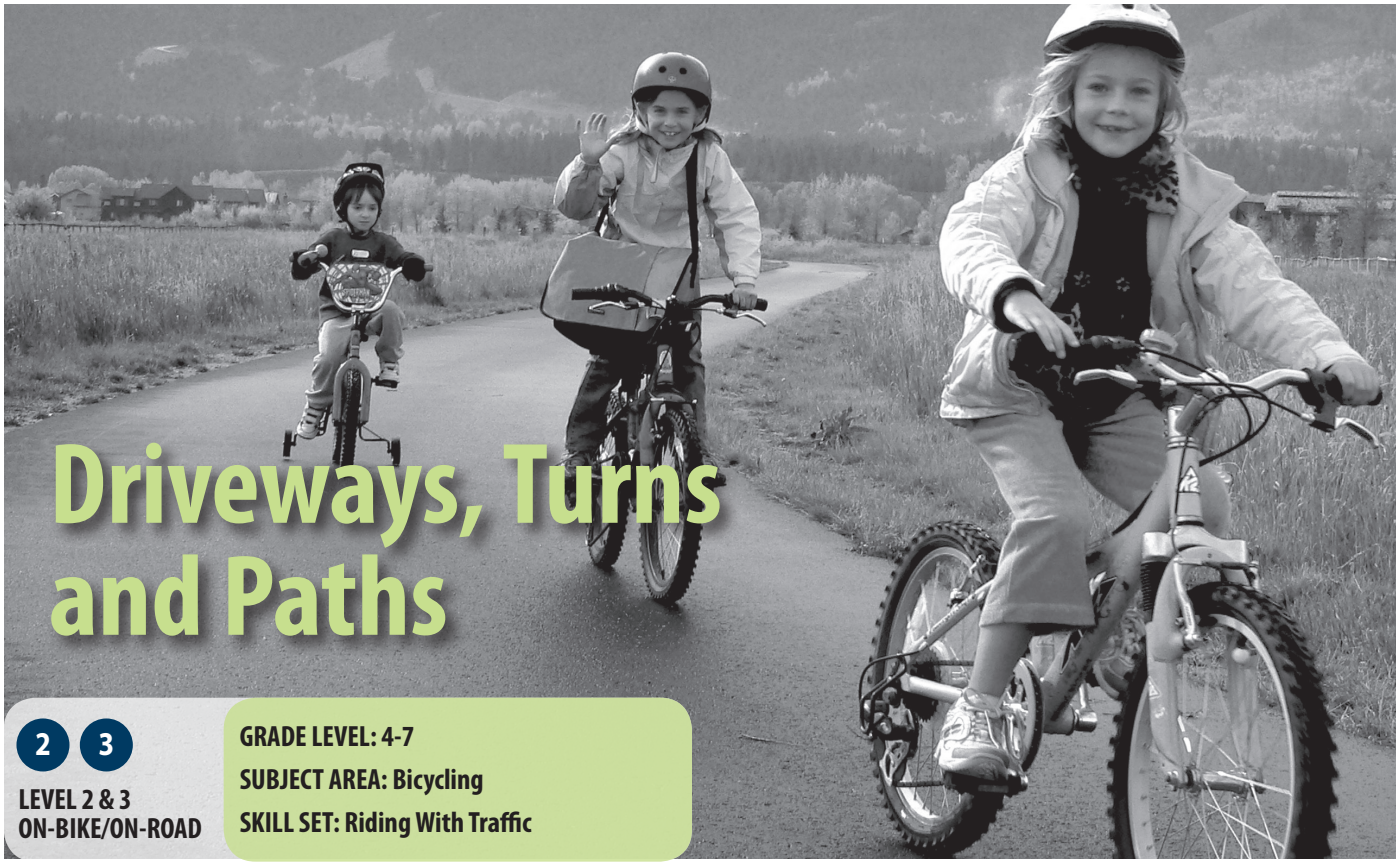
Notes: Many pedestrian crashes do not occur in the first lane, but the second or third lane of traffic at which they cross.

The wider the street the longer it will take to cross, wider streets are often harder to cross

The faster the cars are traveling, the quicker that they will reach your point over a fixed distance. Therefore it is important to estimate the speed of the cars coming relative to the distance at which they must travel to reach you.

TOP CAUSES FOR YOUTH PEDESTRIAN INJURIES

- **Crossing away from an intersection**
- **Improperly crossing a roadway or intersection**
- **Darting into traffic / unseen**
- **Walking along roadways**



Driveways, Turns and Paths

2 3

LEVEL 2 & 3
ON-BIKE/ON-ROAD

GRADE LEVEL: 4-7
SUBJECT AREA: Bicycling
SKILL SET: Riding With Traffic

Purpose:

To complete bicycle skills training, teach road positioning, and instruct on turning right out of driveways.

Activities in this Lesson:

- Helmet, bike, clothing check
- Review skills from Lesson 2
- Predictability, riding on the right
- Driveways
- Introduction to Intersections
- Right turns through intersections

Materials

- Bicycles
- Helmets
- Rubber bands
- Spray chalk for street markings
- Disc cones and larger pylons

Parent volunteers will be useful for the on-street portion of this activity.

Background

In this lesson, students ride on the street. Students start off learning road position, then driveway etiquette, and finally move through intersections both straight and right.

An ideal street is a low-traffic street, at least 200 feet long and 25 feet wide, with two driveways, one on each side, and relatively free of parked cars (or that at least one side of the street has no parked cars). It is useful to have a car blocking the view of one driveway to require students to edge past it to look for oncoming traffic. Use cones to represent a car if cars are not available. As students progress, add an adjacent or nearby intersection.

Label the course with position numbers 1, 2, and 3 in the appropriate locations. Use cones to indicate turning points and consider placing cones or spraying lines to help show a proper riding line in tricky locations.

As a safety precaution, mark the ends of this riding course with cones, staffed by adult volunteers to warn approaching motorists of the bicycling activities. Volunteers will slow approaching motorists and ensure that students do not wander outside the riding course.

Note: Contact property owners for permission to use privately owned driveways. The property owner and school should each sign a liability waiver for use of the driveway.

Note: All student permission slips, waivers and liability issues must be handled prior to this lesson if any on-street riding is conducted. (See waiver in Appendix.)

Introduction

This lesson is on-street practice that includes road position, going straight, and turning right. This lesson is followed by an on-street ride that practices the same skills.
In order to run this course, students might need to take left-turns or u-turns. Try and set up a course where students dismount and walk their bikes across the street rather than talking a vehicular style left turn. If time permits, teachers may start to introduce the strategies and have students practice any or all of the left-turn techniques as found in Lesson 8.

Helmet, Bike, Clothing Check

What: Review helmet fit, bike sizing, and the ABC Quick Check. Before each ride, students should check the safety of their bicycle, helmet fit, and do a clothing check to avoid getting clothing caught in moving parts.

Materials:
- Bicycles
- Helmets
- Rubber bands
- Wrench for adjusting seat
- Cones – disc and large
- Spray sidewalk chalk

HELMETS

Have students collect their helmets, put them on and do a quick helmet check.

OTHER GEAR
- **Clothing:** Make sure that students are wearing clothing that is appropriate for the weather. To avoid soiling pant legs, tuck right pant legs into socks, roll pant legs to mid shin, or cinch with a rubber band.
- **Shoes:** Closed-toed and sturdy shoes are preferable
- **Shoelaces:** tie shoelaces and tuck big shoelace bows into the laces of the shoe.

BIKES

Make sure that students can stand over their bicycles and that the seat height is properly adjusted. Go through the ABC Quick Check to make sure that all bicycle components are in working order. Students with problems should raise their hands for assistance.

Review Skills from Lesson 4

What: Prior to progressing in skill building and riding on the street, students should be competent in the basic bicycle handling skills covered in Lesson 4.

Materials:
- Use basic course layout (see description above).
- Cones - discs and large cones or halved tennis balls
- Sidewalk chalk

If needed, review starting, stopping, signaling, oral communication, one-handed riding, and looking back. Students should quickly go through the course practicing each skill.

Predictability: Ride on the Right

What: On-bike lesson that teaches students to ride on the right side of the street. Riding on the right side of the road, Position 3, is an essential practice that all bicyclists must follow.

Materials:
- Volunteers to direct students
- Cones as safety aids or to block off street
- Parked cars or cone simulation of cars
- Sidewalk chalk to label course

RIDING ACTIVITY LAYOUT:

Use the roadway described in the Background section of this lesson. As discussed in class, bicyclists typically ride on the right side of the road, in position 3.

ACTIVITY:
1. Students line up at one end of the street and ride in a straight line down the right side of the street (practice in two groups of 15).
2. Teachers should ensure that students hold a straight line 3' from the curb or far enough from cars to avoid an opening door. Bicyclists should avoid swerving in and out of parked cars; rather maintain a straight line, avoiding car doors. If there are no cars for the rest of the block, students can move closer to the curb.
3. A volunteer at the end of the course will instruct students to look back for traffic, employ a left turn signal, say "slowing", and then make a u-turn.
4. Go back down the other side of the street. Repeat.
5. Rotate students to allow the second 15 to go.

Tip: Allow waiting students to watch or practice other drills, such as the snail race.

Driveways

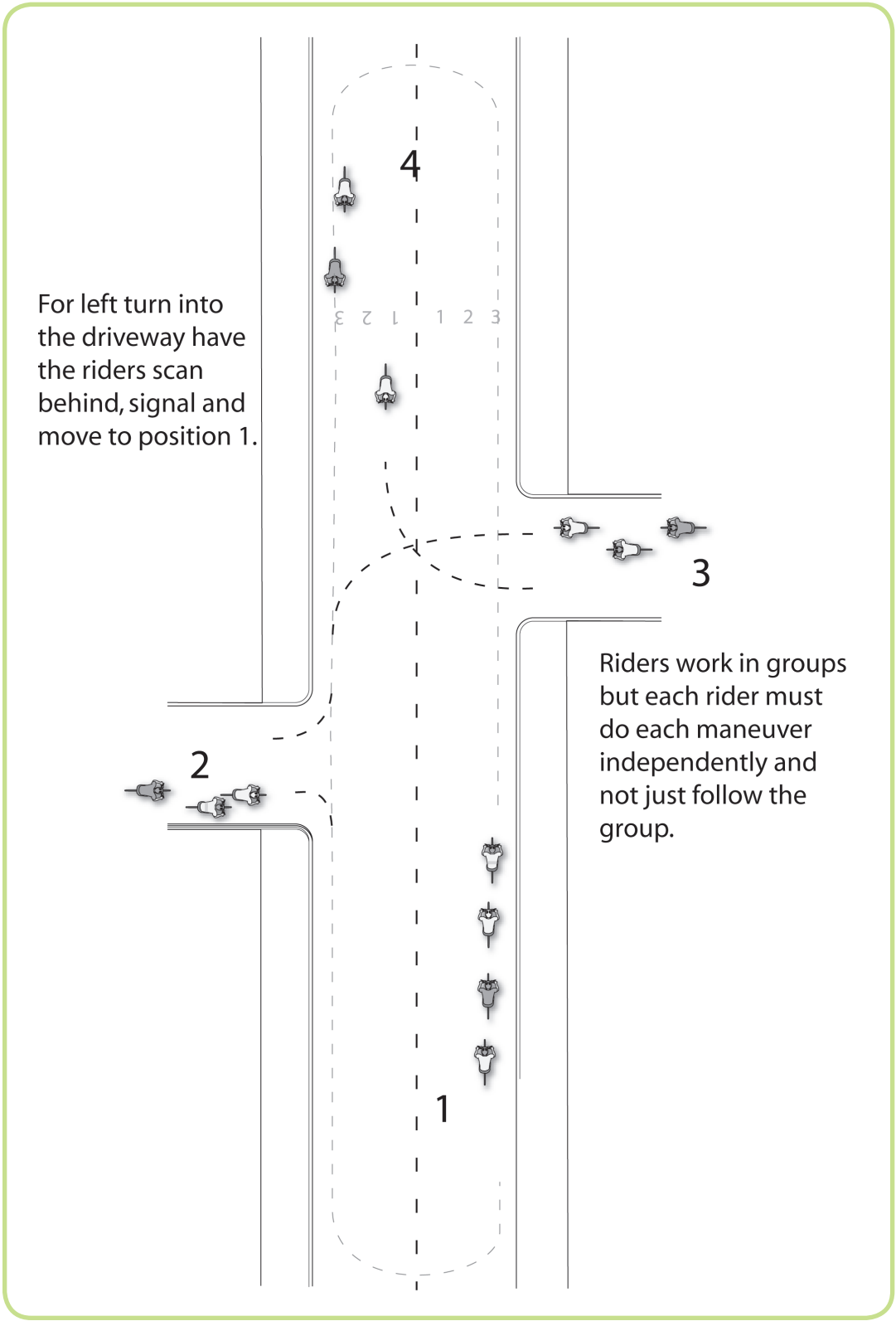
What: Riding activity that drills the importance of properly riding out of a driveway, and how to interact with pedestrians.

Driveways are the most frequent location for child-car crashes. Learning the proper methods for emerging from a driveway should be a priority for a bicycle safety program.

RIDING ACTIVITY LAYOUT:
Diagram: Sample course for riding on the right with driveway.

Discuss: Riding out of driveways and alleys is an easy and important skill. Riding out of driveways and alleys:

- We must yield to pedestrians;
- Is the primary location for young people crashing with cars; and
- We often have visual barriers, and must get into proper position to see past them.



ACTIVITY: RIGHT TURN

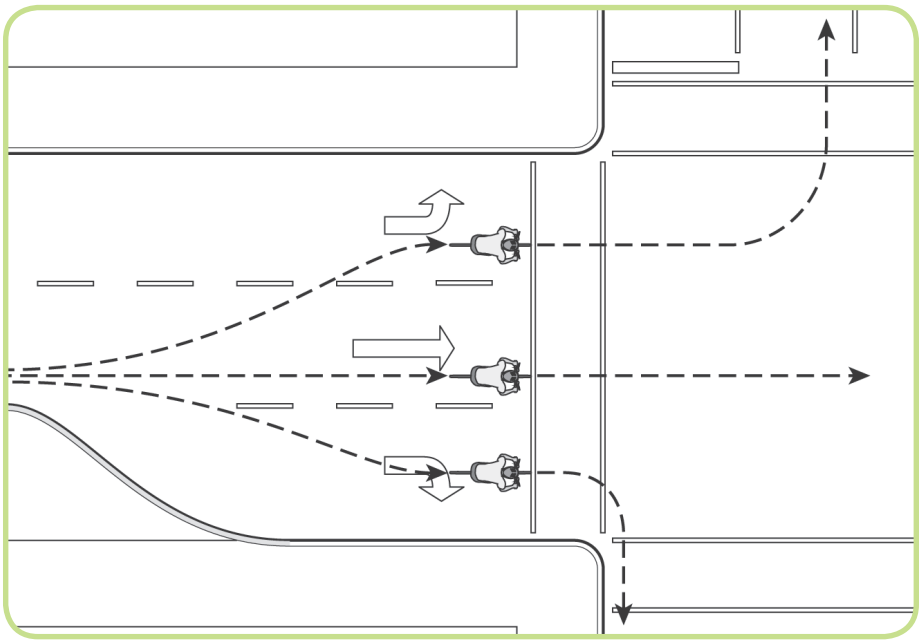
1. Ten to15 students will ride around the loop, with two students acting as pedestrians crossing the driveway.
2. One at a time, bicyclists will emerge from the driveway. Cyclists must first stop and yield at the sidewalk to look for pedestrians, and then proceed to the virtual (or chalked) stop line that is the area before the traffic lane and past any visual barriers, where students can see oncoming traffic from both directions.
3. Students must make a full stop here and look left, right and then left again.
4. Students will signal the right turn and go when it is clear.
5. The rider should make a right turn only when there is a sufficient gap in traffic. Instructors must remove cyclists if the loop gets too crowded. To expedite the exercise, always have a few students waiting in line to emerge from the driveway.

ACTIVITY: LEFT TURN FROM THE DRIVEWAY

1. Students will begin to take left turns out of the driveway or parking lot, and exit the street by turning into the driveway.
2. Allow students to make left turns out of the driveways, requiring them to judge traffic flow coming from both directions, scan back and to each side and signal before turning left, or scan ahead and to each side and signal right turns.
3. Manage the flow of students and avoid congestion with too many riders on the street. However, if congestion occurs, use it as a teaching moment about congestion on the streets.

ACTIVITY: LEFT TURN INTO THE DRIVEWAY

1. If time permits, allow students to start making left turns into the driveways. They should start from the roadway.
2. Turning left will require the conventional left turn procedure discussed in Lesson 8. Conventional left turns include looking



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

- **use both brakes while slowing and stopping**
- **look left, right, and left again at the end of driveways and at stop signs**
- **turn left properly and with care**
- **follow right of way rules**
- **use hand signals**

IMPORTANT DRIVEWAY AND STREET RIDING PROCEDURES

DRIVEWAYS:

- you must yield to pedestrians.
- are a top location for young people crashing with cars.
- often have visual barriers, and we must get into proper position to see past them.

RIDING ON THE STREET:

- Ride in position three
- Ride 3' from curb and cars; maintain a straight line and don't weave in between cars.
- Yield to walkers
- Look back and signal before turning

back for traffic, signaling and moving from Position 3 to Position 1, signaling again, judging oncoming traffic and pedestrian traffic, then turning properly into the driveway.

3. This difficult maneuver is a good warm-up for Lesson 8, Left Turns, which focuses on intersections.

Note: Do not allow passing, racing, or out-of-control riding.

Introduction to Intersections

What: Discussion and demonstration to introduce intersections. Intersections are the most difficult places for students to safely maneuver and are a top cause of student – auto crashes. The rest of this curriculum places an emphasis on intersections.

Course Layout: See above.

Discuss and demonstrate:

1. ***Introduce*** the intersection and demonstrate turning procedures. There are many types of intersections, but the principles of getting through them remain the same. Generally, riders can go straight, left, or right [we must always understand and follow the right-of-way rules]; it is important for a cyclist to maintain proper road position.
2. ***Go straight:*** cyclists start in Position 3 and continue through the intersection in Position 3. A cyclist may edge into Position 2 and, once through the intersection, the bicyclist will edge back right.
3. ***Turn right:*** cyclist will remain in Position 3 and signal a right turn and turn into Position 3. Cyclists must yield to pedestrians, waiting for them to cross the street before any turn.
4. ***Turn left:*** riders must go from Position 3 to Position 1, the left side of the far left lane. Riders must look back, signal, looking back again and moving from Position 3 through Position 2 and into Position 1. Left-turning cyclists then scan for and yield to oncoming traffic. However there are three types of left turns and we will cover them all.
5. ***Pass on the Wave-through:*** Students should be encouraged to treat an intersection like a motor vehicle would, going through only one at a time, and taking the appropriate right-of-way. Accepting a wave-through from drivers can be hazardous, as students may focus on the driver who is waving them through, and fail to yield to or notice other traffic. Teach the students how to shake their heads no if they are being waved through by a driver. Indicate to the driver with hand signals (wave) that they should take their right of way.
6. Instructors should review the **right-of-way rules** and the types of intersections, including: uncontrolled, stop sign, and stoplight. Intersection types are the first measure to dictate right of way. Students may yield inappropriately – encourage them to take their right-of-way.

RIGHT OF WAY AT DIFFERENT TYPES OF INTERSECTIONS

UNCONTROLLED: an uncontrolled intersection does not have signs or a stoplight. All vehicles must slow down at these intersections (as if everyone has a yield sign) and follow the Right of Way rules. (Technically, walkers always have the right of way at intersections but they must be very careful.)

SIGNED: signed intersections generally have two or four signs.
Two Stop Signs - many intersections will only have two stop signs. The vehicles without stop signs have the right of way over the cyclists facing stop signs, who must wait until all cars and pedestrians in the non-signed lanes have passed. People turning left always have to wait for straight-going cyclists without stop signs. People turning left with stop signs can technically go before cyclists going straight with stop signs, if the left-turner arrived to the intersection first.
Four Way Stop – if there are four stop signs, all cyclists have to stop and the normal right of way rules apply. Vehicles facing a yield sign go before those with a stop sign.

TRAFFIC LIGHT: Red means stop. Green means go. Yellow means slow and stop. If you are approaching an intersection and the light turns yellow — **stop**. But never stop in the middle of the intersection, even if the light turns yellow. Cyclists can usually take a right turn on red; the only time they are prohibited is when a sign says so, or if local law prohibits it.

Right Turns through Intersections

What: Activity where students practice intersection maneuvers.

Materials: See above discussion "Introduction to Intersections." Refer to diagram on page 55.

Riding Activity Layout: See above discussion "Introduction to Intersections."

Note:

- Intersections are difficult to master; therefore allow students ample time to practice each maneuver. Each student should have 6-8 passes at each skill.
- Instructors should demonstrate each turning procedure prior to running the exercise.

RIGHT TURN

- Split the students into four groups around the intersection.
- Cyclists will ride up to the intersection in Position 3 and signal right.
- They should stop, and look for vehicles and pedestrians and yield as appropriate. Have a rotating group of students act as pedestrians.
- Cyclists will turn into the street, like in the driveway demonstration.
- After making the turn, students look back, signal left and make a U-turn around the cones.
- Continue the exercise until students are doing the turns well. Students may have to wait in a queue to start again.

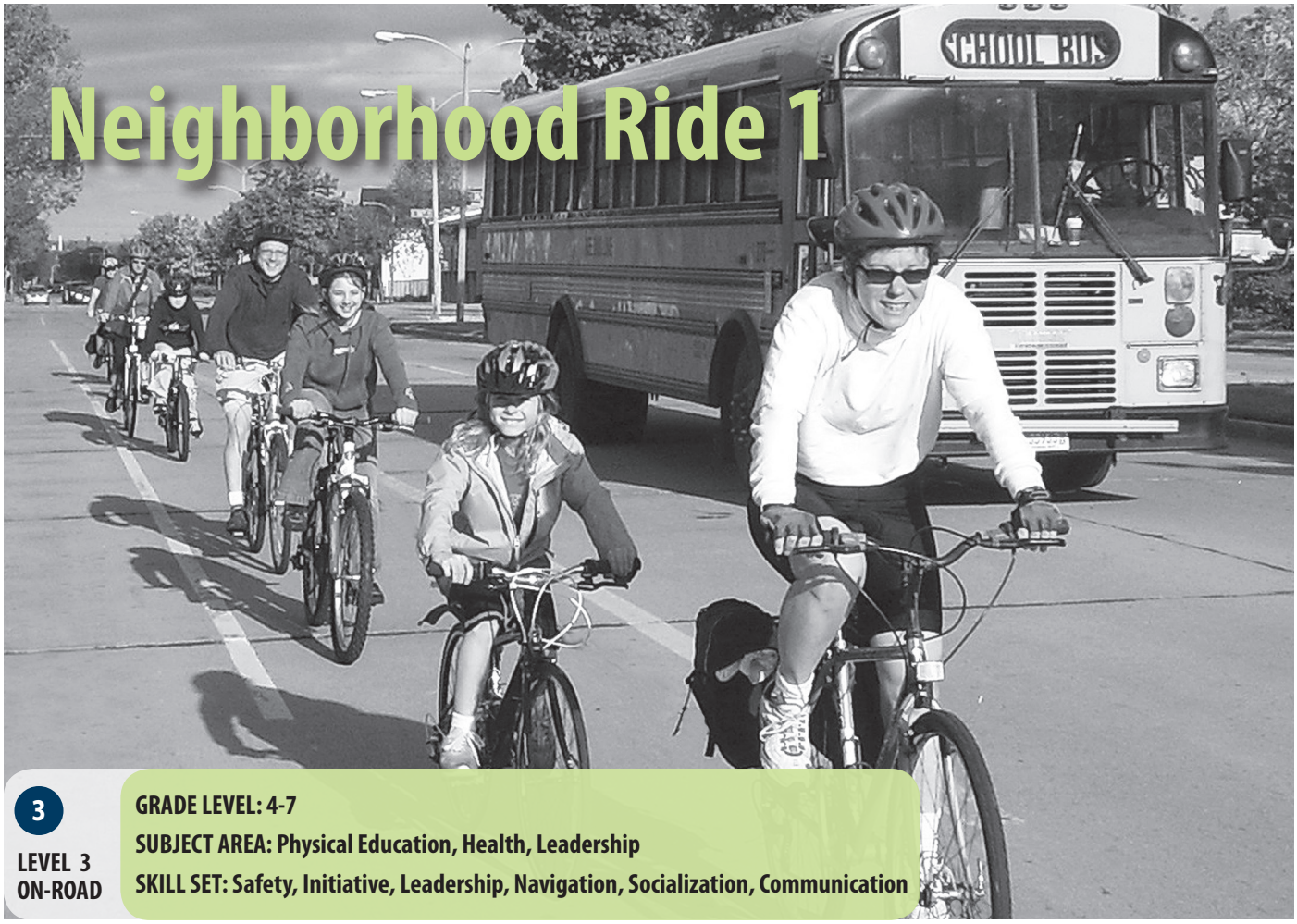
STRAIGHT

- Students will maintain Position 3 and practice straight and right turns simultaneously.
- Have students alternate between right and straight movements. Allow pedestrians to cross.

Tip: If possible, it is useful to remove two stop signs so that students can practice different right-of-way situations.

Tip: Select students that exhibited a good understanding of the intersection exercises to demonstrate for the rest of the class. Ask the observing students what they liked about the student demonstrations. Instructors can also give a play-by-play commentary to the whole class. Students can applaud good performances.

Neighborhood Ride 1



3
LEVEL 3
ON-ROAD

GRADE LEVEL: 4-7
SUBJECT AREA: Physical Education, Health, Leadership
SKILL SET: Safety, Initiative, Leadership, Navigation, Socialization, Communication

Purpose:

Take a bicycle ride through the neighborhood that will allow students to practice the bicycling skills learned so far in an on-street environment.

Topics:

- Neighborhood ride
- Riding on a Multi-Use Path
- Review the Bicycle Ride

Materials

- Volunteer Materials (to mail in advance)
- Route Maps (for ride leaders)
- Bright safety vests for each student
- Repair tools (1 per group)
- Patch kits (1 per group)
- On-bike pump (1 per group)
- First aid kit (1 per group)
- Cell phone
- Walkie-talkies
- Watch
- Water bottles and water, snacks

Introduction

The neighborhood bicycle ride is important to practice aspects of the bicycling skills. On-street practice is more effective in teaching on-street riding skills than bicycle rodeos or courses that don't take students on the street. During these rides, students practice skills in real, though well-supervised, environments. Students gain confidence and practical knowledge while having fun and increasing interest in cycling.

This curriculum prescribes two neighborhood rides, however we recommend offering as much on-bike road riding as possible. This first ride will practice the skills taught in preceding lessons, including communication, stopping at edges, looking left-right-left, coming out of driveways, road position, and going straight and right through intersections. Lesson 9 is a second ride that practices left-turn skills and may take students on more challenging routes.

Background

Instructors must coordinate rides in advance, obtaining approval by school administration and following all field trip procedures. Instructors should work with a certified League Cycling Instructor to develop strategies for conducting on-street rides, recruiting volunteers, and developing routes.

Volunteers must be recruited and trained. Be sure to recruit enough volunteers. A standard student to adult ratio is 5:1; ideal is 3-4:1; a maximum ratio is 7:1. Volunteer Group Ride Leaders should be experienced riders and receive overview materials in advance and an orientation. It is possible to mail introduction materials to volunteers and provide an orientation on the day of the ride. See the appendix attachments for more information about working with volunteers.

Plan the routes in advance and produce a map to distribute to all ride leaders. Select a variety of traffic routes; make each ride progressively more difficult, keep the first ride easier than the second; consider the difficulty of the terrain and the length of ride based on the experience and physical conditions of the students. Avoid major arterial streets or highways.

Carry sufficient water and snacks.

For more information on getting support for bicycle rides and partnering with local League Cycling Instructors, visit www.bikeleague.org or call 202-822-1333.

Neighborhood Ride

What: An adult-led on-street bicycle ride where students ride through the community to practice skills, have fun, and learn about safe routes. The Neighborhood Ride is a hands-on community-based bicycle ride that allows students to practice and master skills, focusing on communication, stopping at edges, looking left-right-left, coming out of driveways, road position, and going straight and right through intersections.

Materials:

- Bright safety vests for each student
- Repair tools (1 per group)
- Patch kits (1 per group)
- Pump (1 per group)
- First aid kit (1 per group)
- Route directions
- Cell phone
- Walkie-talkies
- Watch
- Water bottles, water, and snacks

Group Leader orientation and printed materials should provide additional information on the ride routes, tips for effectively leading groups of children. Group Leaders should enhance the students' experience, by:

- Ensuring a safe ride, where students follow the rules of the road and act independently.
- Providing regular individual and group feedback
- Coaching students through intersections and to main proper road position.

LEADING A GROUP OF STUDENTS

A Group Leader (GL) oversees a small group of students. The GL will often have another adult or parent to support and improve safety.

Generally, the primary course instructor or lead group sets the pace of the bicycle ride, the volunteer GL should try to maintain this steady pace, providing efficient and instructive coaching.

SAFETY AND RULES

GLs are responsible for ensuring that each student acts independently and follows the general rules of the road. Students should act like responsible cyclists, maintain good road position, and make full stops at appropriate intersections.

LEADERSHIP

The GL helps establish a leadership structure, where students become the leaders, or captains, and the GL is the coach. Students should be allowed to head up the ride, and rotating this position helps instill confidence in all types of youth. Students in leadership roles often respond positively and rise to the occasion. Students who are leading must be more observant and effectively process decisions; this enhances learning.

FEEDBACK

The GL must offer feedback to students. Feedback should provide a general analysis of riding behavior and an interactive discussion to help students to observe conditions and dangers. These discussions enhance learning.

An effective metaphor is the announcer; GL leaders announce the ride to students, maintaining consistent commentary about the ride generally and making observations on things like road conditions, upcoming intersection types, and hazards. They point out environmental conditions, such as trees and

MAX RATIOS

Group Leader	5 students
Group Leader + Parent	7 students

flowers; and engage the students in a dialogue about what environmental conditions they like.

Tip: The ride is a time for students to practice the skills they learned during the bicycle safety course. Coaching the finer points facilitates the educational opportunities that will enhance safety and fun. Coaching also requires clear and explicit direction giving.

GROUP AND GROUP LEADER POSITIONING

GL position among the students is an important factor in the ability to deliver a message and coach students, and in providing protection for the students' safety.

The recommended default GL position is at the rear of the group, positioned slightly to the left of the student line. This position allows the leader to easily monitor and communicate with students. From this position the GL can quickly ride /sprint to the front of the group when needed; the GL effectively shields the students from rear approaching traffic.

Students are given a level of responsibility because they are leading the group. GLs should facilitate the rotation of the leader and use the leader spot as an incentive and a role that requires distracted students to focus. Additional adults should position themselves close to the front to help facilitate a more information-packed student led ride.

- **Approaching intersections** – GLs should move to the front of the group to help students get through intersections, model behavior and aid students through difficult situations.
- **Straight and right –** ride leaders will ride to the front of the group in Position 2 (left of the students), and stop and stand to the left of the group at stop signs or traffic lights. It is important to coach students, making them stop at the stop line prior to the pedestrian zone and then move forward to a position with a better line of sight but not in the line of oncoming traffic. A good line of sight is an important factor that students often overlook. Coaching for a good line of sight will require students to be strategic and attentive in getting through the intersection.
- **Preparing for left turns –** leaders can model behavior by riding to the front well in advance of a left turn. Demonstrate and facilitate looking back, yielding if necessary, signaling, and merging from Position 3 to Position 1. The ride leader should stand to the right of student, ensuring that they have a good line of sight. Ride leaders do not always need to model left turns, however it's important to drill proper left-turn etiquette, and provide spoken feedback from the rear of the group.

ETIQUETTE OF RIDING TO THE FRONT

The ride leader should make it clear to students that they will be shifting positions throughout the ride for coaching purposes. When passing, the GL will call out "passing" and ride clear of the students. This shifting of position can help students understand group-riding dynamics. Ride leaders may even have students practice passing. Students should be encouraged to stay in the same order for the duration of the ride, the last student rider should move up by passing the group on the left when switching leaders.

COACHING THE INDIVIDUAL

In addition to providing feedback to the group, a GL must provide feedback to individual students. GLs should ensure that each student negotiates the streets using their own skills, requiring each student to navigate each intersection on their own, not as a group. It is essential that the student determines the safety of the situation, and that GL not assume the role of decision maker. Students must not blindly follow the rider in front, and each individual must stop at each stop sign or red light signal.

Adults should learn the names of each student (tape on the students' helmets stating their name is helpful). Students should be given respect, and they generally respond well to holding leadership responsibilities, such as leading the ride. Allowing students to the lead the ride helps them remain on task, follow directions, and keep the group together. Placing disruptive students as leader can help them focus, too.

It is essential to provide clear directives to students and it is effective to use program vocabulary including road position terms. For example, say "stay in Position 3 through the whole turn" rather than "ride on the right."

Intersections are an important place to coach. A GL must help students get through intersections as individuals. Riding through as an individual is important for student's safety and learning effectiveness. Avoid waving student groups through intersections or telling the students when you believe that is clear to ride.

- Build confidence among students by allowing each one to

make their own decisions at intersections. An instructor may coach a student by asking, "Do you think it's clear?" and ensure they do not emerge into a dangerous situation.
- Coach them on where to stop, stopping at the stop line, then moving forward past a crosswalk or visual obstructions to get a better view and then stop again before looking for traffic.
- Encourage students to wave on car drivers that have the right-of-way. Car drivers that see five students in a group will often wave the whole group through. Avoid this, rather, have the student stand flat-footed, shake their head "no," and wave the driver back, waiting for their right of way.
- Be explicit and clear about where to go after riding through the intersection. Instruct lead students to wait ahead by agreeing on a landmark that they see, ask "do you see the red mailbox, wait there after turning until I tell you to go again."
- Using the power pedal position.
- If a student does something unsafe or makes an error, use this "teachable moment," to pull the group over into a safe place and discuss, making sure all students have understood the error and how to correct it.

OTHER COACHING POINTS

Coaching can also happen from speaking loudly from the rear or by riding along side of a student to assist with specific skills. Other coaching points include:
- Proper road position
- Facilitate verbal communication among the group and identifying hazards and cars
- Gearing and efficient pedaling.
- Handling difficult situations and crossing railroad tracks.
- Positive feedback is extremely powerful. Make sure to comment afterward on something positive about each student's riding.

RIDE ORGANIZATION

The ride is organized by splitting up a large group or class of students into smaller groups led by Group Leaders.

Other adult volunteers can assist Group Leaders. Having two adults in one group allows flexibility and additional supervision in case of mechanical or other difficulties. Two adults can more easily negotiate intersections. Have the supporting adult ride through the intersection after the first student, providing added supervision for waiting students that have already gone through the intersection. This helps when a red traffic light splits a group up.

Small sized groups are ideal because they are manageable and generally treated more like traffic by auto drivers. Small groups then allow slower riders, or ones with a mechanical problem, to join a later group

ORGANIZING GROUP LEADERS AND OTHER ADULTS

The course instructor should be in the first group. Another responsible adult, either the classroom teacher (if these are different) or course assistant should ride in the last group. This sweep group will wait for any students that are grounded with flats, mechanical problems, or other concerns. The adult sweep should have mechanical knowledge to help fix problems. With five or more groups, the adult in the middle group should be an experienced volunteer.

It can be effective to have an experienced instructor serve as a floater, shifting between groups. The floater can monitor GLs, answer questions, and offer advice or other support. The course instructor can be a floater if enough experienced ride leaders are available.

SET UP STUDENT / ADULT GROUPS

The course instructor or teacher will form student groups. Students may be strategically grouped, separating difficult kids, or grouping slow riders and placing them at the rear so faster students don't get impatient. It is easier to have the faster groups of students wait in the front for lagging groups then to ride slowly the whole ride.

One method of creating groups is to have students line up (they may do this anyway for the ABC Quick Check) and count off. Each GL will also be assigned a number and students will walk their bikes over to the ride leader with the same number.

Group Leaders, adults and students in each group should have a short discussion prior to the ride. The leader can set ground rules and the group can establish expectations. Rider leaders should try to learn the names of each student.

INTER-GROUP COMMUNICATION

Ideally, walkie-talkies will be provided to facilitate communication between ride leaders. At least one adult should have a cell phone for emergencies. The final group will generally hold the phone.

DISRUPTIVE STUDENTS

Disruptive students should be excused from the ride. The ride should be considered a privilege, something to work toward. However, disruptions can happen in any group. Consider putting them in the front of the group, giving students more responsibility. Students that cannot be contained should be

transferred to the primary instructor's group.

RIDING LOGISTICS

Rides are generally structured so that each group uses the same route.

The primary instructor generally rides in the lead group or acts as a floater if enough knowledgeable ride leaders are present. The sweep rider is someone who knows bicycle mechanics; the sweep carries tools, medical equipment (first aid kit), and a cell phone. An additional instructor should lead a middle group.

Each group should be spaced far enough apart that they act independently. Groups should be able to see at least two groups in front and two behind them. Therefore the lead group must wait for trailing groups, effectively keeping the ride together. Busy streets can take a long time to cross, so the first groups must avoid riding off while the second or third group has not crossed the major street.

Neighborhood parents may volunteer to serve as a 'Rest stop' for bathroom breaks, pulling over into a driveway to rest, regroup or discuss some issue. Pre-arrange this with parents to get permission.

CAUTION!

Automobile drivers may not want to wait behind a group of 10 students learning to negotiate intersections. Try to inform the motorist that each student has rights to the road and each student is an individual vehicle driver. They are learning to be safe vehicle operators and they will be through in a minute.

DIFFERENT ROUTE

This model is more likely for classes with multiple lead instructors. The benefit of taking different routes is that the students are not bunched together, appearing to be one long bike parade, and may receive a more realistic riding scenario.

Tip: Avoid crossing busy streets that do not have a traffic light in order to facilitate good flow for a ride. When crossing busy streets with a traffic light, consider walking bikes across so that the entire class gets through at one time. This can show the power of getting off the bike and walking.

ROUTE LOGISTICS

Prior to the ride, the instructor must give volunteers specific route directions. Distribute small maps or direction sheets to each adult. Select low- to medium-traffic streets and choose an appropriate distance based on the time designated for the ride. On this first ride, focus on right turns, going as far as was practiced in previous practice lessons. Later rides will include left turns and can eventually move to higher traffic streets as students gain skills, or during a final ride.

STARTING THE RIDE

1. Discuss ride logistics with students. It is possible to readdress much of the volunteer orientation during this discussion, so urge adults to listen too.
2. Go through pre-ride helmet, ABC Quick Check, and clothing check with students. Ensure that every student has a safety vest on.
3. Organize adult and students into groups.
4. Have students form a line with their bikes. Select a temporary student leader for each group.
5. Ensure that adult volunteers introduce themselves to students and discuss rules for the ride.
6. Ride – and have fun!
7. Review Neighborhood Ride Guidelines
   - Riders must wear a well-fitted bicycle helmet.
   - Bicycles are vehicles and must follow all traffic laws.
   - When riding on the roadway, ride is position 3, as far to the right as is safe.

GROUP RIDING TECHNIQUES

- Students must take responsibility for themselves. Avoid lazy behavior like following the leader of a group, especially in intersections, coming out of driveways, or going through stoplights. If a traffic light turns yellow and half of the group rides through, the other cyclists should stop and wait for the green light.
- Ride single file, pass to the left. (Limit passing on the group ride).
- Communicate with other riders verbally and with hand signals (left and right turns, stops, hazards, slowing, passing).
- Leave at least one bike length between riders.
- Consider traffic volumes and speeds when deciding which left-turn technique to employ.
- Pull off to the right side of the roadway for discussions and rest stops.

Riding on a Multi-Use Path

What: A riding activity that teaches the etiquette of cycling and walking

on a multi-use path.Take students to a multi-use path near the school grounds. Have students ride on the path and stop the class periodically to discuss different elements listed below.

BICYCLISTS ROLES ON A MULTI-USE PATH

Bicyclists are vehicles but are allowed on most multi-use paths. However, walkers have the right-of-way on the path, so bicyclists must slow down and yield to walkers. It is ideal for cyclists to ride reasonably slow, not race, on the path so they don't hurt walkers. Bicyclists are allowed to ride two abreast, talking to friends, on a path, but must go single file in crowded conditions to yield for walkers.

BICYCLISTS YIELD TO WALKERS

Bicyclists must slow down and yield to walkers. Walkers are unpredictable, they can side step or jump at any time. It is for this reason that best practice is for cyclists to give walkers a verbal warning before passing a walk. Say "passing" or "on your left" when passing, or ring a bell if you have one. Pay close attention to young children, dogs, and other pets for they might just jump out in front of you.

SHOULDER CHECK BEFORE SWERVING

Bicyclists riding on the path travel at various speeds and there is always a chance that another cyclist is approaching from the rear but is virtually silent or doesn't make the required verbal call to indicate passing. Before swerving for a walker, look behind your shoulder to ensure that another cyclist is not speeding up to pass.

Nine out of 10 bike crashes are not with cars, but just falls. Many of them can happen on these multi-use paths.

Review the Bicycle Ride

What: This discussion offers the repetition necessary for students to understand traffic safety concepts and to clear up confusion or difficulties from the bicycle ride. A similar review is suggested in Lesson 10, after the second bicycle ride.

Materials: none

Discuss the ride. How do the students feel it went? Was it fun and did they feel confident? Do they have questions or issues that they want to clarify?

Left Turns

3
LEVEL 3
ON-ROAD

GRADE LEVEL: 4-7
SUBJECT AREA: Physical Education, Health
SKILL SET: Safety

Purpose:

Introduce students to the complexities of left turns into driveways and through intersections. Students will learn the finer points of intersection maneuvers and the three left-turn techniques.

Activities in this Lesson

- Intersections Revisited
- Left turns through intersections
- Intersections: putting it all together
- Practicing around the block

Materials

- Volunteers to direct students
- Cones
- Spray chalk to label course
- Teachers should block off or put out cones at the intersection
- Four stop sign props (or draw a stop line and write stop on the pavement with sidewalk chalk).
- Safety Vests for Students

Introduction

Left turns are possibly the most difficult maneuver for any bicyclist. Making a vehicular-styled left turn requires a series of actions including looking back to gauge traffic, signaling, merging, and then negotiating on-coming traffic. Because of the difficulty, teachers should focus the entire lesson on the three left-turns types and using these maneuvers to get into driveways and through intersections. Provide ample opportunity for repetition and practice in all of the aspects. Reinforce and drill looking back, signaling, lane position, and then yielding to oncoming traffic. If possible, provide some individual coaching for each student.

Background

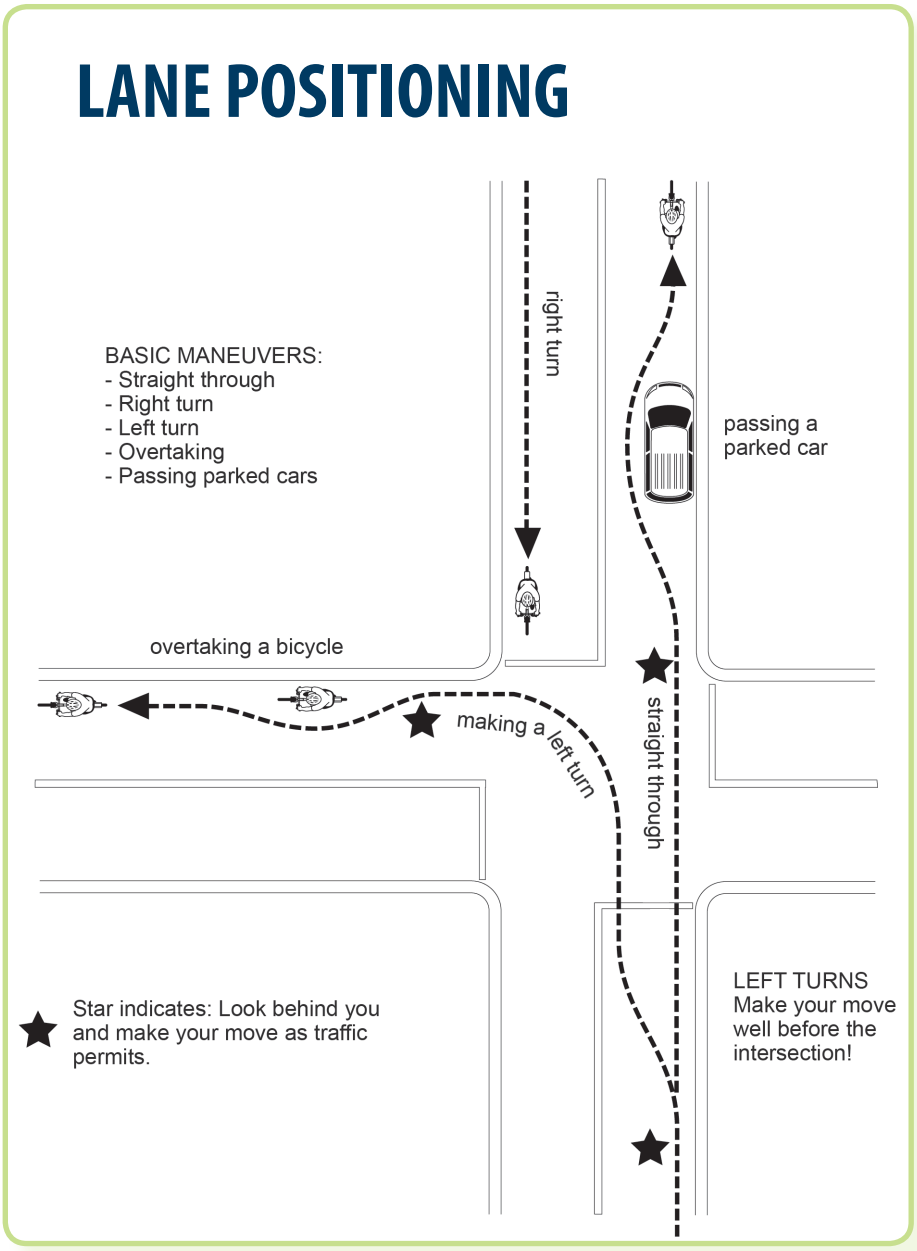
This lesson requires the use of a real street and intersection. The same intersection from Lesson 6 can be used; an ideal street has an intersection and driveway where students can turn. Street characteristics include: low-traffic, and an intersection with 200-300 feet of road on each side of the intersection.

Streets should not be cluttered with cars parked on the street. As a safety precaution, mark the ends of the course with cones to increase the visibility of your activity. Or block off streets using police markers. However, blocking off an intersection can impact automobile access.

Using the sidewalk chalk, write Positions 1, 2, 3 on the pavement so that students can have reference points. Instructors can also put small disc cones to guide students to where they should look back to prepare for turns and the location of Position 1 at the intersection.

Adult volunteers will provide support and assist students at critical decision-making points on the course and remind students to:

- use both brakes while slowing and stopping
- look left, right, and left again at the end of driveways and at stop signs



LEFT TURN TYPES: BENEFITS & DISADVANTAGES

The conventional / vehicular styled left turn is the type employed by most advanced cyclists. Riding like a vehicle is predictable, safe, and efficient way to make a left turn. However these turns are technical and must be employed with intention to avoid collision. These turns become more complex and hazardous as vehicle speeds, volumes, and number of lanes increase.

The two-corners turn is most useful in high traffic areas and particularly in multi-lane situations. Very few children are equipped with the skill to merge across multiple lanes in order to achieve the proper left-turning position, which is generally the left-most road position. However, the Two Corners turn is less efficient and less predictable for vehicle drivers; it puts cyclists into the crosswalk, which is where turning movements occur and drivers may not be looking for cyclists in this zones.

- turn left properly and with care
- follow right of way rules
- use hand signals

WARM UP/REVIEW
Conduct a standard pre-ride review and warm up. Explain the activities, allow students to retrieve helmets, conduct a clothing and helmet check, retrieve bikes, and conduct a size and ABC Quick Check. Have students ride to warm up.

Intersections Revisited

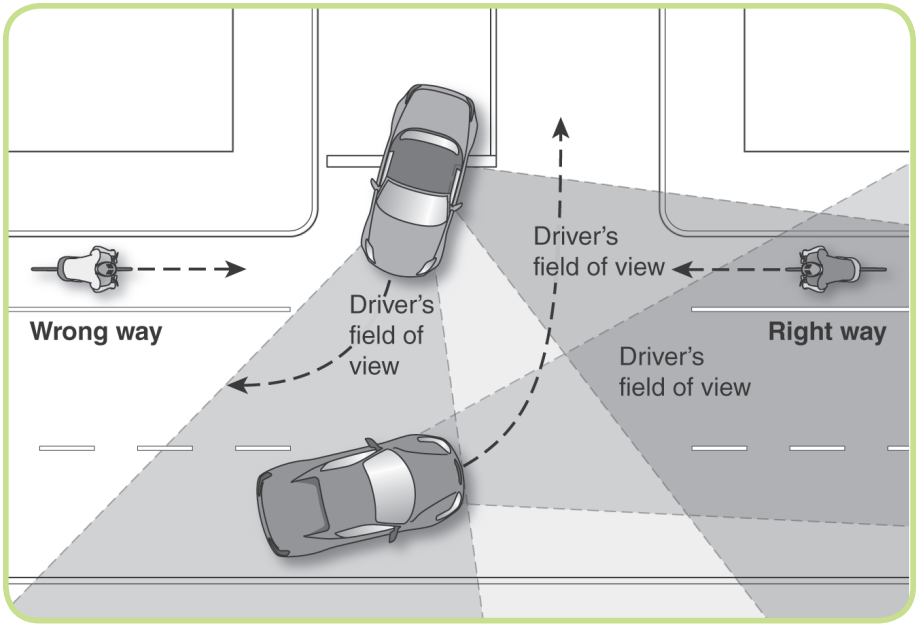
What: Review intersections and intersection types with students. The type of intersection will impact right of way and other technical issues necessary to understand how to properly move through the intersection.

Course Layout: See above.

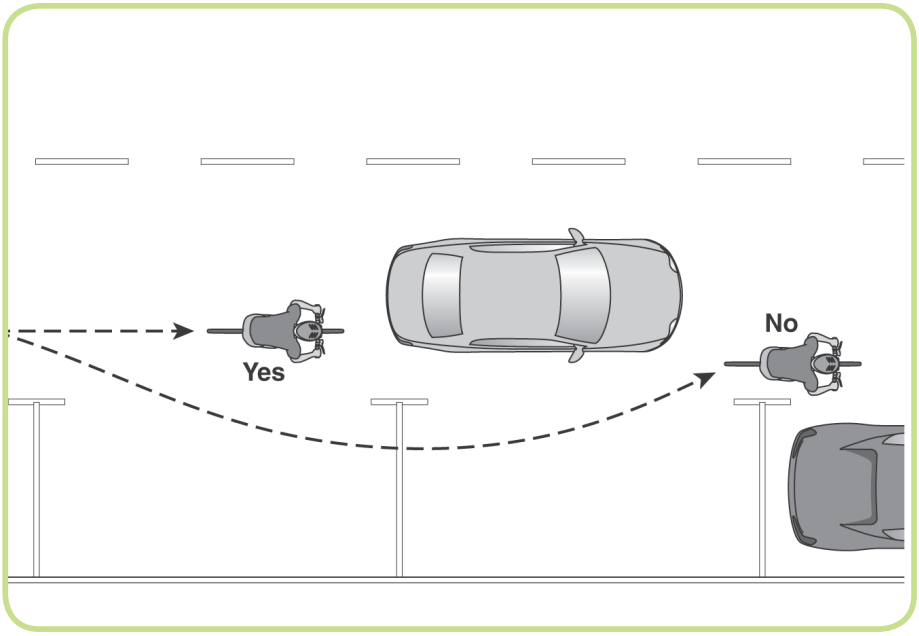
Discuss and demonstrate:

1. ***Instructors should review the right-of-way rules and the types of intersections, including:*** Uncontrolled, stop sign, and stoplight. Intersection types are the first measure to dictate right of way. Students may yield inappropriately – encourage them to take their right-of-way. (See Lesson 6 for more information on intersection types.)
2. ***Turn left:*** Riders must go from Position 3 to Position 1, the left side of the far left lane. Riders must look back, signal, looking back again and move from Position 3 through Position 2 and into Position 1. Left-turning cyclists then scan for and yield to oncoming traffic. There are three types of left turns and we will cover them all.
3. ***Pass on the wave-through:*** Students should be encouraged to treat an intersection like a motor vehicle would, going through only one at a time, and taking the appropriate right-of-

WHAT NOT TO DO:



Wrong-way riding



Wrong way to ride around parked cars

way. Accepting a wave-through from drivers can be hazardous, as students may focus on the driver who is waving them through, and fail to yield to or notice other traffic. Reinforce this so students can wave a driver through the intersection.

Left Turns through Intersections

What: Activity to demonstrate and practice the three methods of turning left through and intersection. Left turns are difficult for students and all three types of left turns should be demonstrated and thoroughly practiced.

Materials:

- Volunteers to direct students
- Sidewalk chalk
- Cones for visibility

Riding activity layout: See Background of this lesson.

Note:

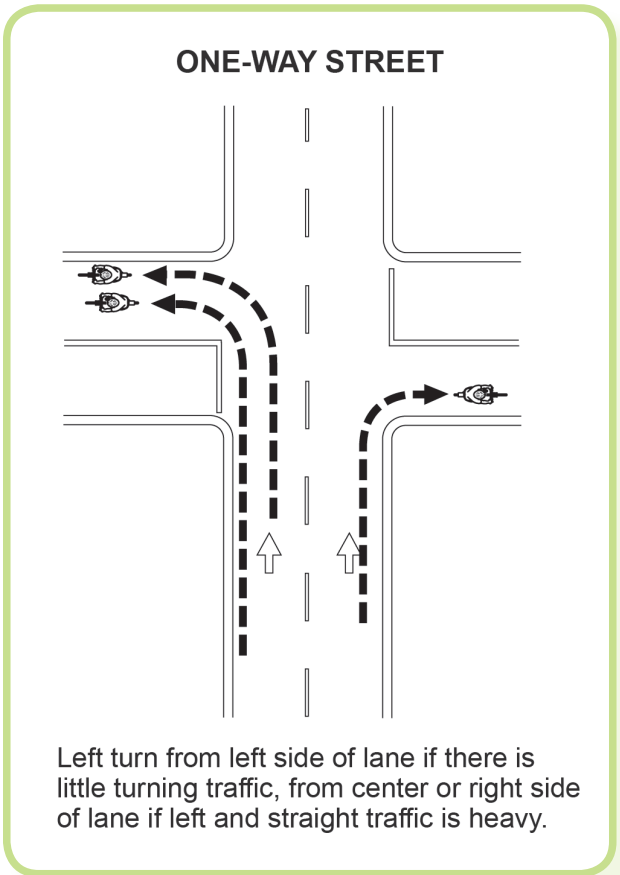
- Intersections are difficult to master, therefore allow students ample time to practice each maneuver. Each student should have six to eight passes at each skill.
- Instructors should demonstrate each turning procedure prior to running the exercise.

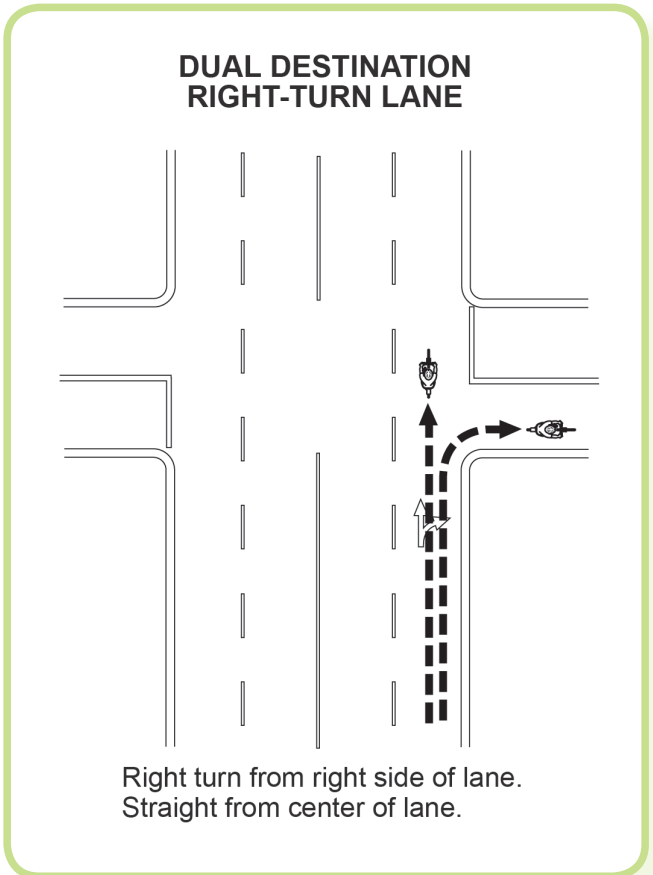
LEFT TURN TECHNIQUES

Conventional: the conventional turn requires a cyclist to look back, yield to overtaking traffic signal, look back again, and move to Position 1 (in the center of the leftmost lane.) They will stop at stop signs, scan for and yield to oncoming traffic. The bicyclist will then turn into Position 3 and continue riding. Cyclists must yield to pedestrians in all circumstances. The conventional turn is not advised in high traffic and multi-lane situations.

Two corners: the two-corner turn allows the bicyclist to stay in Position 3, avoiding lane position changes. Riders should employ the slowing hand signal and ride slowly parallel to the crosswalk to the far right corner of the street. The cyclist stops, repositions their bike in Position 3, going with the direction of traffic. The cyclist then rides straight through the intersection when they have the right-of-way. This turn is best when getting to Position 1 is difficult, on wide multilane roads and streets with high traffic volumes and speeds.

BICYCLING IN TRAFFIC





Pedestrian: when cyclists use the pedestrian turn, they first ride slowly to the crosswalk (as in the Two Corners turn), dismount, and walk their bike to the opposite corner. Cyclists tend to do this when their end destination is at that far corner of the intersection.

1. Instructors should demonstrate each turn and allow the students to practice.
2. Allow the students to master one turn, then demonstrate the next. Allow students to practice each turn type.
3. Ask students for feedback on each turn style and ask when they might use each. Instructors may select students to model turns for the rest of the class, offering commentary while the students rides. Allow watchers to comment.

SIMULATION

If no suitable on-road course can be found on which students can ride in groups, a parking-lot or playground Oval Course can simulate two-way traffic, complex intersections and decision-making. Chalk or cone off the oval on the ground. Use red discs or cones for stop signs. The oval has a cross street that creates simulated 4-way stops. Practice as you would on the road – scan an signal for each lane position shift or turn.

Intersections: Putting it All Together

What: Activity to combine all of the turning and right of way rules learned thus far. Continued practice of all skills is the most effective way for students to master skills.

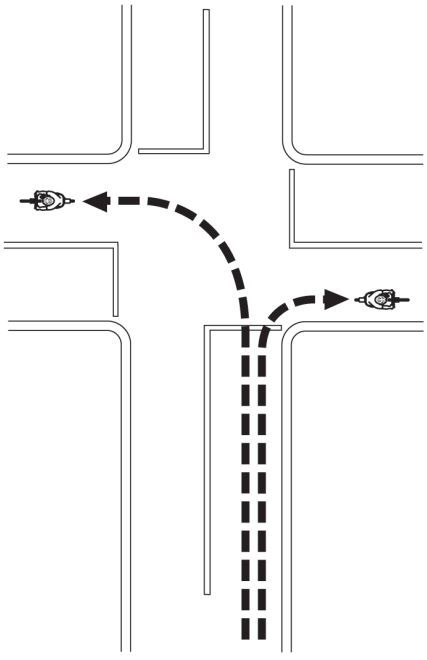
Riding activity layout: Same as above

Activity: Divide students into four groups. Each student should do:

- Two right turns
- Two straight maneuvers
- Two left turns, in that order.

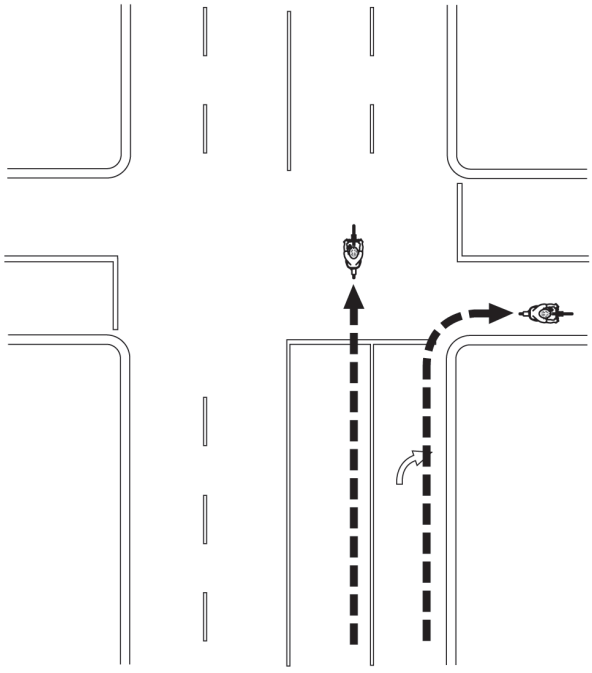
This is a continuous activity, allow students to practice the sequence multiple times. Instruc-

TWO-WAY STREETS



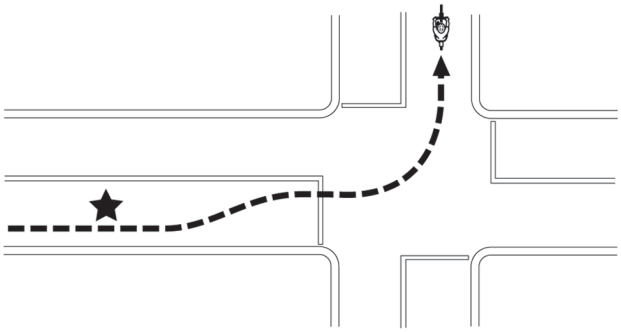
Left turn from left side of lane.
Right turn from right side of lane.

RIGHT-TURN ONLY LANE



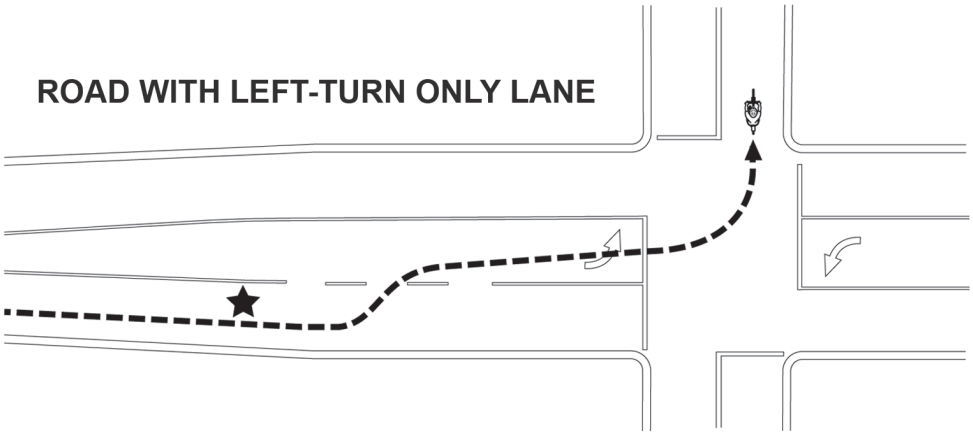
Right turn from right side of right-turn only lane.
Straight from right side of through lane.

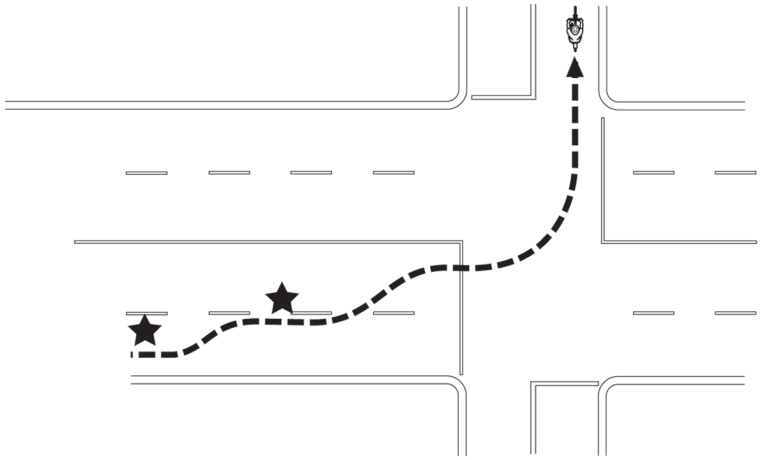
MAKING LEFT TURNS



TWO-LANE ROAD
WITHOUT A TURN LANE

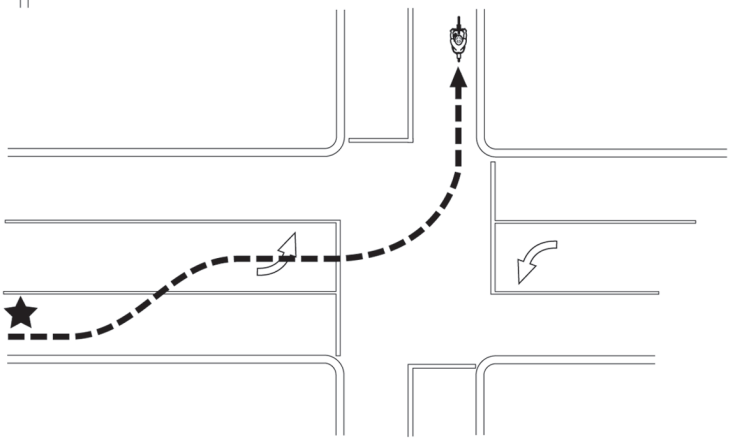
ROAD WITH LEFT-TURN ONLY LANE





MULTI-LANE ROAD
WITHOUT A TURN LANE

ROAD WITH CONTINUOUS
LEFT-TURN LANE



tors and volunteers enforce all rules, informing students of broken laws and improper procedure. Instructors cue student pedestrians to cross the street, focusing on developing an understanding of proper walking procedures and requiring cyclists to yield.

INDIVIDUAL ASSESSMENT AND FEEDBACK

It is important to provide students with individual feedback of their intersection skills. This can be done by having students go one at a time, or to have the instructor keep a list of students and assess each one at certain points throughout the class exercise.

Providing feedback may require the instructor to periodically stop the activities and demonstrate proper behavior. This feedback loop is an important component for student comprehension and their ability to practice the new information.

Practicing Around the Block

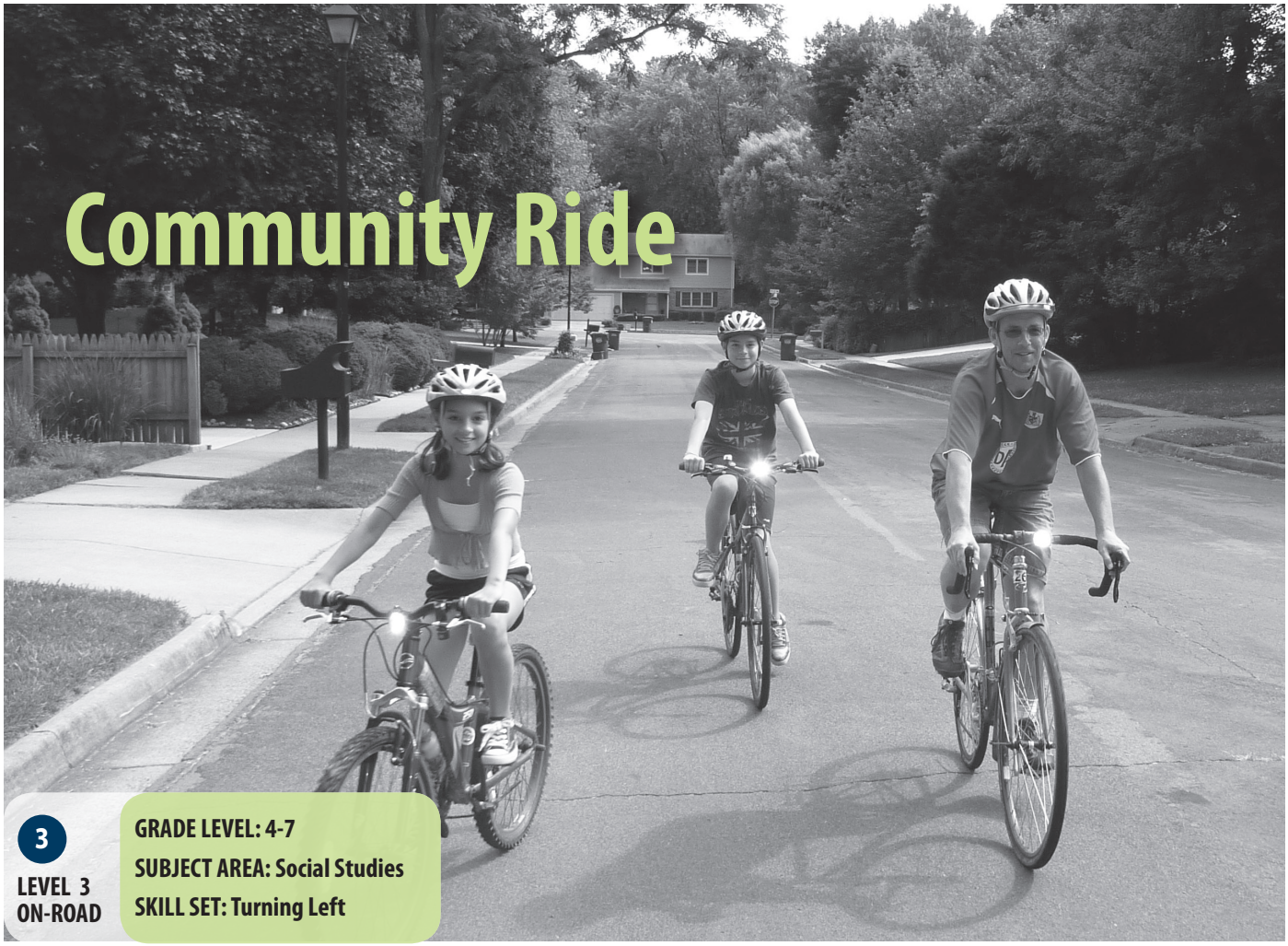
Ride around a square block, or some other loop course, and make required turn movements. It is recommended that there be at least one adult volunteer for every five to seven students.

PRACTICE COMMUNICATION

These exercises are intended to develop a practical sense of road position and right of way. Students should use verbal and hand communication to help determine right of way.

Cyclists can indicate or tell walkers that it is safe to cross. This communication will be useful during the community rides, because auto drivers often wave students through intersections. When the motorist has the right of way, students must learn to shake them off and wave the motorist through. This process increases their safety and builds confidence on the street.

On a more technical note, this teaches that waving someone through an intersection does not preempt right of way rules.



Community Ride

3
LEVEL 3
ON-ROAD

GRADE LEVEL: 4-7
SUBJECT AREA: Social Studies
SKILL SET: Turning Left

Purpose

Take a neighborhood bike ride that will allow students to practice bicycling skills in on-street environments

Topics

Neighborhood ride (activity)
60 minutes

Introduction

This is the second and last ride as prescribed by this curriculum. Teachers should practice left-turns and take students on more advanced routes.

Providing the maximum amount of on-bike experience will help students learn independent cycling. Teachers may consider coordinating extra-curricular cycling clubs or refer students to other service agencies that offer additional levels of programming. These programs often focus on other aspects as well, including bicycle mechanics, mapping recommended safe routes, and promoting cycling and walking to youth peers or adults.

Preparation notes:

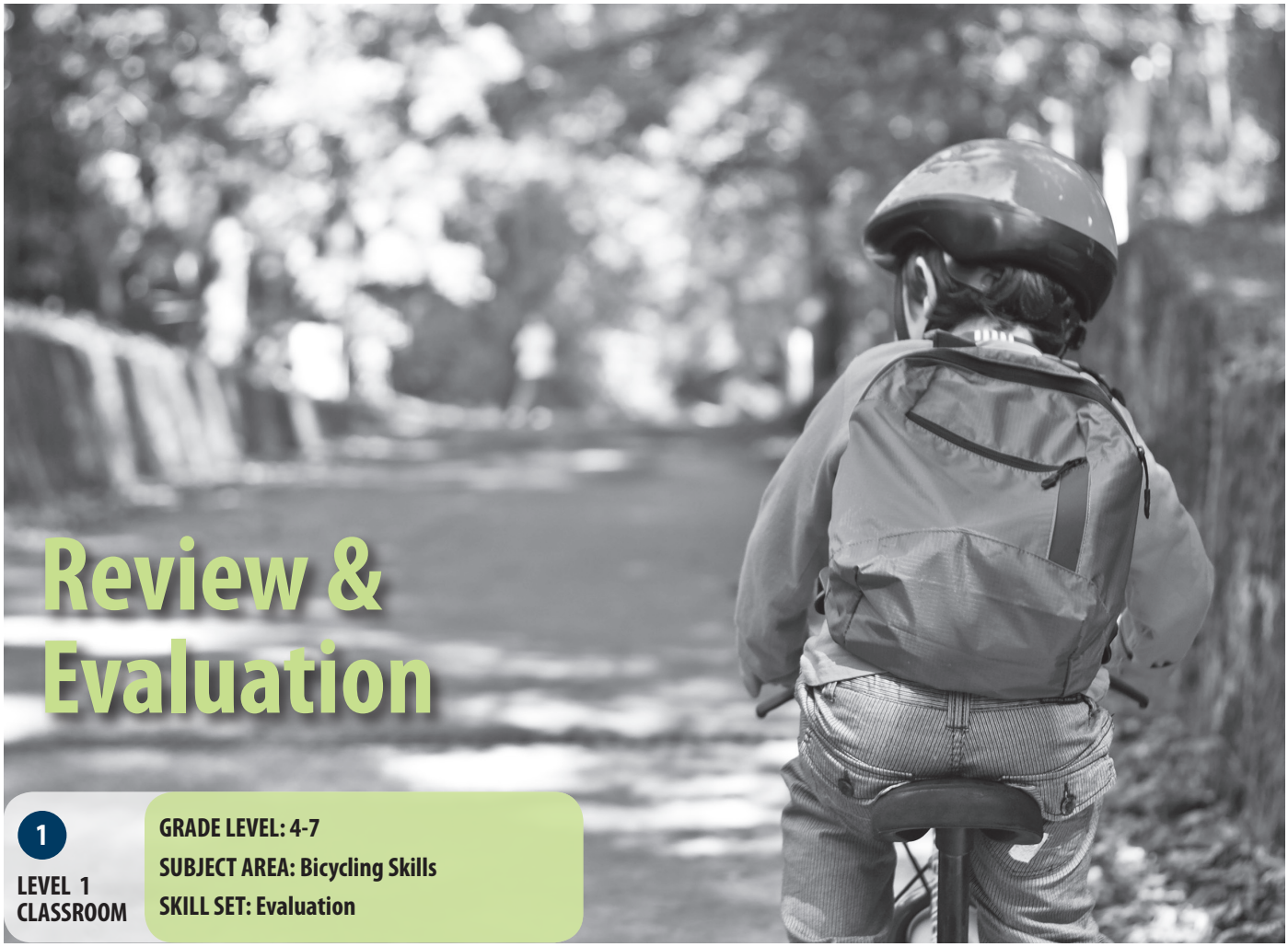
Plan out routes and recruit volunteers for on-street ride. Recruit at least one adult for every five students. Work with a certified League Cycling Instructor to develop strategies for on-street rides and working with volunteers. See Lesson 7 for details on running rides.

Neighborhood Ride

What: On-street bicycle ride where students are broken into groups led by adult volunteers. The rides travel through the community practicing skills and having fun.

Follow procedures in Lesson 8. The ride should be similar, however, on this one you will want to practice left turns and may decide to take the students further, on more advanced streets, up larger hills, or even for some sort of field trip, to a destination such as an ice cream store, restaurant or swimming pool.

Additional bicycle rides and instructional time are highly encouraged to ensure that students become skilled at all maneuvers and have a chance to experience handling new hazards and scenarios.



Review & Evaluation

1
LEVEL 1 CLASSROOM

GRADE LEVEL: 4-7
SUBJECT AREA: Bicycling Skills
SKILL SET: Evaluation

Purpose

Review the bicycle ride and discuss issues with students. Students revaluate route selection and take a post-test for comprehension. The post-test is reviewed.

Topics Covered

- Review the bicycle ride
- Route Finding 2
- Post-test / Teacher evaluation
- Review post test

Materials

- Homework from Lesson 7, discussion notes of routes with parents
- Post-test
- Answer Key
- Teacher Evaluation
- Test questions

Review the Bicycle Ride (discussion) 10(3)

What: A discussion of the ride taken during the previous lessons. This discussion provides necessary repetition of the concepts used and clears up any confusion or difficulties for students from the bicycle ride.

Materials: none

Discuss the previous day's ride. How do the students feel it went? Was it fun and did they feel confident? Do they have questions or issued that they want to clarify? Specifically discuss left turns and the pros and cons of the different turn types.

Route Finding 2

What: Discussion that applies the experience of a ride to follow-up on the Route Finding 1 activity in Lesson 3. This discussion provides students with insight to help them select safe routes.

Materials: Homework from Lesson 3 or review of previous walkabouts or rides.

Explore in more detail the students' perspectives of different street types; discuss homework conversations with parents. What types of streets do students prefer to ride on? How do parents feel about students riding bicycles to school or other locations? Are there differences in parent and student perceptions on issues of traffic volumes, speeds, cut-throughs, and multi-use trails?

What types of routes might students encounter when riding or walking to school? Is it possible for them to map out a route plan to school using mostly the streets types that they like?

Optional: Map student routes from home to school, or from school to home.

Post-Test

What: Written test taken by the students. This post-test is designed to evaluate changes in student comprehension.

Materials: One copy of the Post-Test per student

Administer the written post-test to students. Students will have 15-20 minutes. Use the pre and post-tests as an evaluation tool to measure the students' improvement and as an element of the grade for the class.

Teacher Evaluation for the Bicycle Safety Program

What: Teachers complete the League evaluation of the program and mail or email it. This teacher evaluation provides the League of American Bicyclists with the opportunity to hear feedback from instructors around the nation.

Materials: Evaluation sheet

Please complete an evaluation of the Bicycle Safety Program. This evaluation will serve to improve the program and assist the League of American Bicyclists in better serving the needs of teachers and students in communities across the nation. This should take no more than the allotted time for the post-test, 15-20 minutes. Please return completed evaluations to:

League of American Bicyclists
Attn: Safe Routes to School Evaluation
1612 K Street NW, Suite 800
Washington, DC 20006
Bikeleague@bikeleague.org

WRITE A LETTER OF SUPPORT

The League would appreciate a letter of commendation or support for the Safe Routes to Schools and bicycle and pedestrian safety programming. Please send letters to the above address. Letters should be no more than two pages typed on school letterhead. Letters of support could include the following topics:

1. Course Content — is the content appropriate, exciting and educational for your class?
2. Experiences for Your Class — did your students enjoy the class? Did they think it was an appropriate topic and experience for school?
3. Potential for the Course — would you run the course again? Is this something that more teachers should do? Might you recommend that bicycle safety is a necessary component of the 6th – 8th grade curriculum?
4. Length of Course — consider the appropriateness of a comprehensive course with on-bike training versus a one or two hour program with discussions of bike safety.
5. Training — were trainings helpful and necessary, or not?

Review Post-Test

What: A discussion to review the post-test answers. This discussion provides students with additional chance to review the basic traffic safety knowledge.

Materials: Overhead of test questions

Note: Teachers may prefer to first grade the test and review it with students upon returning them. Use the answer key for the post-test and talk about answers out loud on an overhead of the test. Discuss each question and the correct answer. Take questions or input from students.