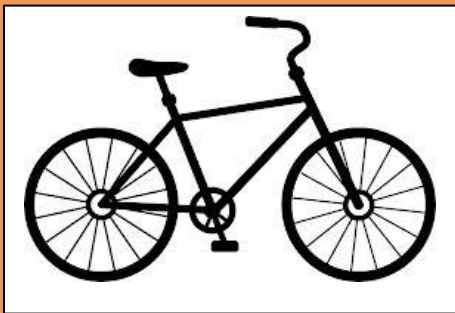


Bicycle Riding and Safety Curriculum



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Sponsored by Healthy South Carolina Initiative

Acknowledgements

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In addition, special appreciation is extended to Mr. Tom Bell of the City of Rock Hill for his considerable assistance in providing the equipment for the Ebenezer Avenue Elementary students involved in the pilot studies. His input and participation in helping to teach the safety aspects of bicycling was invaluable.

There are several bicycle safety programs in use across the country. Research for this project included the review of a variety of these programs. These bicycle safety lessons were developed using the following programs and educational materials:

Bicycle Safety: 3rd Through 6th Grade. The Colorado Department of Transportation & Colorado Safe Routes to School.

Bicycle Safety Program Curriculum (3rd ed.). The Bicycle Transportation Alliance, Safe Routes for Kids & the Oregon Department of Transportation.

Pennsylvania Bicycle Education Lesson Plans: 6th Grade. (2011, August). Pennsylvania Safe Routes to School & the Pennsylvania Department of Transportation.

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Bicycling Unit Justification

As recently as 1969, about half of the school-aged children in the United States walked or biked to school. Today, fewer than 15% of school children walk or bike to school and as much as 20-30% of morning traffic is generated by parents driving their children to school. Children are less active today and the majority of children living within one-half mile of schools are driven in private vehicles. Obesity rates are on the rise and the cost of obesity and other health-related challenges have significant impacts on the rising cost of health care in the United States, not to mention the lifestyles of our children. In 2008, 50% of nonfatal bicycle injuries occurred in children ages 5-20. That same year, children aged 0-20 made up 21% of bicycle fatalities and children under 15 years of age accounted for 45% of bicycle injuries treated in emergency departments. More children ages 5-14 are seen in emergency departments for injuries related to biking than any other sport. Apart from the automobile, bicycles are tied to more childhood injuries than any other consumer product.

On a positive note, teaching children about bicycle riding and safety in physical education classes can have several positive impacts on young children. Each month, three out of four children ride a bicycle in the United States. Riding bicycles contributes to the overall cardiovascular health of children by providing continuous movement of the large muscles of the body for long periods of time without stopping. Approximately 45% of children in the United States always wear a helmet while bicycling – a figure that should increase with educational interventions to raise awareness of the necessity of wearing helmets when riding a bicycle. A child who rides with companions or adults wearing helmets is more likely to wear a helmet himself/herself. Younger children are more likely to wear helmets than older children, which makes this biking curriculum particularly important at the 6th grade level.

In response to these challenges, and in an effort to encourage healthy living and improve bicycle safety in the schools of South Carolina, this bicycle safety curriculum has been developed in support of the South Carolina Physical Education Standards for middle school physical education. The ten lesson plans included in this unit were pilot-tested at Ebenezer Avenue Elementary School by Ms. Pattie Starnes (Physical Educator) in an effort to develop a tested biking curriculum for public schools. In the future, this biking curriculum will help other physical educators teach young students about safe bicycle riding, and introduce a variety of motor, cognitive, and affective skills that can help children stay safe while they ride their bicycles to school and in their communities.

Relationship to South Carolina Physical Education Standards

This biking curriculum is a combination of indoor and outdoor lessons that can be used together or separately, depending on the time, space, facilities, and equipment available. Each of the ten lessons builds upon the concepts and skills of the previous lesson. The outdoor lessons are focused on the practical application of concepts and skills learned in the indoor lessons. These 10 lessons are developmentally appropriate for the elementary and middle school levels; however, because elementary and middle school students have a wide range of abilities from the pre-control level to the utilization level, it is important to differentiate learning for individual students. These lessons satisfy the following physical education standards for South Carolina (and sample sub-elements for each standard):

Standard 1 – Demonstrates competence in motor skills and movement patterns needed to perform a variety of physical activities.

Grades 6-8: Benchmark 1.4 – The student will demonstrate the basic skills that one uses in an outdoor pursuit (for example, adjusting the seat height for biking, launching a canoe).

Standard 2 – Demonstrates an understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performing of physical activities.

Grades 6-8: Benchmark 2.5 – The student will identify selected physical-activity experiences for social, emotional, and health benefits (for example, jogging to reduce stress, walking with a friend for social interaction).

Standard 3 – Participates regularly in physical activity.

Grades 1-2: Benchmark 3.1 – The student will participate regularly in moderate-to-vigorous physical activity in and outside of physical education class (for example, climbing on the rock wall or playground equipment during recess, riding a bicycle, etc.).

Standard 4 – Achieves and maintains a health-enhancing level of physical fitness.

Grades 3-5: Benchmark 4.3 – The student will select and participate in physical activities that develop and appropriately maintain each of the five components of health-related physical fitness.

Standard 5 – Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

Grades 6-8: Benchmark 5.2 – The student will work cooperatively with a group to establish and achieve group goals in competitive as well as cooperative settings.

Standard 6 – Demonstrates awareness that physical activity provides the opportunity for health, enjoyment, challenge, self-expression, and social interaction.

Kindergarten: Benchmark 6.3 – The student will demonstrate a willingness to learn new fundamental movement skills and try new games.

Block Plan

| | |
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| <p style="text-align: center;"><u>Lesson 1</u></p> <p>Focus: Bicycle Safety Pre-Test Bicycle Helmet Fitting</p> <p>Learning Tasks: Helmet Fit/Helmet Fit Guide Triangle Tag</p> <p>Assessments: Written Pre-Test, Student demonstration of helmet/bike fit</p> | <p style="text-align: center;"><u>Lesson 2</u></p> <p>Focus: Basic Bike Fit ABC Quick Check</p> <p>Learning Tasks: Safety check of bikes Demonstration of check – pairs Start/stop techniques (power pedal)</p> <p>Assessments: ABC Quick Quiz</p> |
| <p style="text-align: center;"><u>Lesson 3</u></p> <p>Focus: Starting/Stopping & Traffic Rules</p> <p>Learning Tasks: Red Light/Green Light Biking Traffic Rules – Stopping Traffic Mix – Bicycle Control</p> <p>Assessment: Teacher Questions – Traffic Rules</p> | <p style="text-align: center;"><u>Lesson 4</u></p> <p>Focus: Bicycle Handling Skills</p> <p>Learning Tasks: Starting/Stopping Drill Straight Line Drill Scan/Signal/Turn Drill Quick Stop Drill Avoidance Weave Drill</p> <p>Assessment: Teacher Questions</p> |
| <p style="text-align: center;"><u>Lesson 5</u></p> <p>Focus: Rules of Road/Riding with Traffic</p> <p>Learning Tasks: Riding with Traffic Simulation Optional Advanced Activity</p> <p>Assessment: Journal Writing – Parental Permission</p> | <p style="text-align: center;"><u>Lesson 6</u></p> <p>Focus: Navigating the Cycling Environment</p> <p>Learning Tasks: Signaling Practice Street Crossing Practice Driveway Practice Intersection Practice</p> <p>Assessment: Discussion of Traffic Rules</p> |
| <p style="text-align: center;"><u>Lesson 7</u></p> <p>Focus: Navigating/Being Visible</p> <p>Learning Tasks: Navigating the Best Route Being Seen By Drivers Where Drivers Look</p> <p>Assessment: Journal Writing</p> | <p style="text-align: center;"><u>Lesson 8</u></p> <p>Focus: Bike Parking and Locking</p> <p>Learning Tasks: Principles – Locking/Parking Application – Locking/Parking</p> <p>Assessment: Journal Writing</p> |
| <p style="text-align: center;"><u>Lesson 9</u></p> <p>Focus: Riding on a Multi-use Path</p> <p>Learning Tasks: Review of Rules – Multi-Use Path Application – Path Riding</p> <p>Assessment: Three-Minute Paper – Rule Differences</p> | <p style="text-align: center;"><u>Lesson 10</u></p> <p>Focus: Bicycle Rodeo/Post-Test</p> <p>Learning Tasks: Stations – Helmet Fitting, Bicycle Fitting, Wheel Shop, Following Rules, Ride Right, Safe Places to Wheel</p> <p>Assessment: Post-Test of Unit</p> |

Lesson 1

Focus: Bicycle Safety Written Pre-Test, Helmet Fitting

Materials: 10 Bicycle Safety Pre-Tests (Appendix A), 10 pencils, 10 bicycle helmets, Helmet Guides (Appendix B)

Objectives: The students will be able to:

1. identify the aspects of bicycle safety that students know already by taking a written pre-test on bicycle safety.
2. recall the importance of wearing a bicycle helmet when asked by the teacher.
3. demonstrate how to properly fit a helmet on his/her head before riding a bicycle in pairs and in groups of four.

Key Points:

- Wearing a properly fitted bicycle helmet can reduce the chance of serious injury from a crash or a fall.
- It is necessary to wear a helmet every time you ride your bike.
- Adjust your helmet so it fits correctly over the forehead, with the chin strap buckled.
- Academic Language: brain injury, balance, coordination, motor skills

Introduction to Lesson (Anticipatory Set/Indoors):

“We are going to be learning about bicycle safety and riding in this unit. It is important to learn about bicycle safety to protect yourselves from injury when riding your bicycle in your neighborhood, to school, or for recreation. A properly worn bicycle helmet cushions and protects the head from impacts with hard surfaces.”

- How many of you have bikes that you ride at home? If you do not have a bike, have you ever ridden a bike before?
- Since the brain is the most important organ in the body, what are some things that your brain controls? (memory, emotions, breathing, heartbeat, balance, and sensation)
- What happens if you hit your head during a bicycle crash? (your brain gets hurt)
- Is your skull enough to protect your brain from the impacts of a bicycle crash? (no)
- What is the purpose of a well-fitting bicycle helmet? (helmet is specifically designed to protect your brain from impacts with a car, tree, or pavement)
- Why does a poorly adjusted helmet not protect your head as well? (it might slip, might leave some parts of your head exposed, might fall off during crash)

Demonstrate helmet fitting procedure on a student volunteer:

- A helmet must be worn low over the forehead.
- Helmet straps should not come down over the ears.
- The chin strap should be tight enough so the helmet doesn't wobble off, but loose enough for the wearer to open his mouth.

Learning Activity 1-1 (Indoors/Classroom): Bicycle Safety Pre-Test (Appendix A)

1. Have students sit in comfortable place (in desks, if possible) to take the pre-test of their prior knowledge about bicycle safety.
2. After completing test, remind them they will take this test again at the end of the unit.

Learning Activity 1-2 (Indoors): Helmet Fitting

1. Have students pair off to check each other – refer to “Helmet Guide” (Appendix B); allow students to perform at least two helmet fittings.
2. Tighten back of helmet (if there is an adjustment).
3. Tighten chin strap and adjust side buckles.
4. Helmet should sit low and level on the forehead – one or two finger-widths above the eyebrow; straps make a V under each ear; chin strap is snug.

Learning Activity 1-3 (Indoors): Triangle Tag

1. Divide students into groups of four (4); all students should be wearing a properly fitted helmet.
2. One person from each group is designated as the “tagger” and stays outside of the triangle; other three form a triangle with hands held together; one of the three is designated as the “person to be tagged.”
3. Group of three moves side-to-side as the “tagger” attempts to tag the student to be “tagged.” The tagger cannot go under or over the group.
4. The helmets that are secure and those that are not will become evident.

Closure:

1. Review principles of fitting a helmet properly; reflect on why helmets are important.
2. Have students demonstrate the three important points to fitting a helmet (eyes, ears, mouth).
3. Preview next lesson on basic bike fitting and the ABC Quick Check.

Lesson 2

Focus: Bicycle Fitting and ABC Quick Check

Materials: 10 helmets, 10 bicycles (have bikes out and organized by size), 10 ABC Quick Check Guides (Appendix C), 10 ABC Quick Check Quizzes, 10 pencils

Objectives: The students will be able to:

1. identify the importance of properly fitting a bicycle to one's body size.
2. recall the importance of properly fitting a bicycle when asked by the teacher.
3. demonstrate how to properly fit a bicycle before riding during the closure.
4. describe the process in doing a safety check on their bicycle every time they ride.
5. discuss the necessity of performing pre-ride checks to their bicycles.

Key Points:

- Bikes are like shoes and need to fit to be comfortable.
- The seat should be at the proper height for safe riding.
- Small adjustments to a bicycle can dramatically change riding comfort.
- Academic Language: seat binders, top tube, chain, cranks, cassette, chainrings, derailleurs

Introduction to Lesson (Anticipatory Set/Indoors):

“The first step to having a safe bike is to have one that fits. A bike that fits properly helps bicyclists stop better and balance better. After finding a bicycle that fits, it is just as important to know that all of the parts work. It is very important to do a bicycle safety inspection every time you ride your bicycle. The goals of today's lesson are to find a bike that will fit you and to learn how to do an equipment check before you begin riding a bicycle. When you find a bike that fits well, you need to use the same bike that has been adjusted to your size for every future class.”

- Why should your bicycle be fitted properly to you? (to avoid long-term injury and discomfort)
- How does seat height affect riding a bicycle? (good seat height maximizes comfort, power, and speed)
- What are two important aspects of fitting your bicycle? (a frame that you can stand over; seat height that allows almost full extension of the leg while pedaling)
- What are some parts of the bicycle that would be good to check before you begin riding? (air, brakes, chain, handlebars, seat)

Learning Activity 2-1 (Indoors): Bike Fitting

1. Have students work in groups of 2-3.
2. Each student should have a bike they can stand over with 1" – 2" of clearance over the top tube.
3. Demonstrate how to use quick release seat binders.
4. Have student mount bike with one hand on a wall or table for stability.
5. Put ball of foot squarely on pedal.
6. Pedal backwards until one foot is in lowest position, pedal down.
7. Have partners check to see if there is a slight bend in the knee
8. Make adjustments and check again; repeat for each student.
9. Briefly discuss gears and demonstrate how to shift gears. The proper gear combination is important for efficient pedaling:
 - Chain is farther away from the bike the harder the gear (downhill).
 - The closer the chain is to the bike the easier the gear (uphill).
 - Flat riding is in the middle.
 - Right hand controls the back gears.

Learning Activity 2-2 (Indoors): ABC Quick Check Guide (Appendix C)

It is very important to do a safety check of your bike each time you ride so you don't get stranded or injured while out riding. Any bike part that is broken may compromise your safety. A properly functioning bike is safer and more fun to ride. Knowing how some of the essential bike parts work will make diagnosing problems easier. You don't need to do exhaustive maintenance, but a 30-second check of a few essentials could save you from a serious crash or from having your bike break down at an inconvenient time or place.

1. Divide students into pairs; all students should be wearing a properly fitted helmet and have a bike that properly fits them.
2. Explain each part of the ABC Quick Check and what each bike part does:
 - **A – Air:** Have student squeeze tires to make sure they are firm; pump tires if air pressure is low.
 - **B – Brakes:** if handbrake, squeeze the brakes and make sure that the bike won't roll and the lever doesn't come all the way back to the bars. If coaster brake, push backwards on the pedal and make sure the bike won't roll.
 - **C – Chain:** Lift the back end of the bike and pedal forwards for a few pedal rotations. Check that the chain runs smoothly through both derailleurs; if chain is rusty, dry off the chain rings, lube, or re-position it.
 - **Quick:** Manually inspect the quick release levers to be sure they are tight; straddle the front wheel of the bicycle and attempt to turn the handlebars – they should not move without the wheel also moving, and they should face

straight ahead. Make sure the ends of the handlebars are plugged (open-ended handlebars can be the cause of serious injury or death).

- **Check:** Give the whole bike a “look over” to check for anything that is falling off, rubbing, or is not where you think it should be. Once riding, make sure nothing is noisy or loose.

Closure: Revisit the discussion about why a bicycle’s parts must all be in good working condition in order to keep the rider safe. Teacher Questions:

- What if you get on your bike and you start riding, and your brakes don’t work? What could happen?
- Do you know of other items on bikes that need to be in good working order?

Written Assessment: ABC Quick Check



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Identify what A, B, C and Hand stand for in the ABC Hand Check.

A stands for _____. Check for wear and tear, also.

B stands for _____. Remember to check the levers and the pads.

C stands for _____. Make sure it’s tight and runs smoothly.

Hand stands for _____. Make sure they’re tight and aligned correctly.

Remember that as you begin to ride, you should **check** your bike to make sure it’s running smoothly. Ask an adult for help if you find problems with your bicycle!

Lesson 3

Focus: Starting and Stopping/Traffic Rules

Materials: 10 helmets, 10 bicycles, parking lot area 90-100 feet long and 20 feet wide, tape measure, chalk, dome cones or flat markers (poly spots), large cones to mark starting lines, whistle, 100-foot tape measure/marking wheel

Objectives: The students will be able to:

1. perform the skills of stopping by identifying stop signs and stop bars.
2. look left, right, left, and proceed only when it is safe to do so.
3. practice safe starting and stopping skills.

Key Points:

- Always start in the “power pedal” position.
- Always use proper braking technique.
- Always step down from the saddle at a stop.
- Academic Language: pedal, edge, braking, power pedal position, pedestrian, saddle

Introduction to Lesson (Anticipatory Set/Indoors or Outdoors):

“Stopping at the edge of a driveway, at stop signs, and at intersections with traffic signs are the first skills of learning to be safe in traffic. The single most frequent cause of injury to young bicyclists (and pedestrians) is failure to stop, or “driveway ride out.” This skill of stopping with control of the bike and looking for “edges,” where it is important to stop, begins with the pedestrian skills but transfers to the bicycle unit. Cyclists need to be predictable to motorists, pedestrians, and other cyclists in order to stay safe, which means riders should be steady on their bikes and able to stop and start expertly.”

- Proper starting and stopping technique can save your life.
- A rider must master starting/stopping before starting to practice other bike handling skills or before starting to ride on the road.
- Explain Starting Technique (Power Pedal Position)
 - Make sure rider is off of the seat and straddling the top tube.
 - Have students figure out which foot they want to start on (one foot is on the ground and the other will begin on the pedal).
 - Have students raise the pedal on the side of their starting foot up to the two o’clock position.
 - Start by simultaneously stepping off the grounded foot and stepping your weight onto the starting foot while lifting up to sit onto the saddle.
- Explain Stopping Technique
 - Stop by having pedals at 12 and 6 o’clock (pedals seen as hands on a clock).

- Remove foot that is on the 12 o'clock position while slowing to a stop.
- Step onto the ground and straddle the top tube; Repeat.

Learning Activity 3-1 (Indoors/Outdoors): Red Light, Green Light Biking

1. Have students begin riding in the same direction around a circular pathway.
2. Have all students stop when you yell “RED LIGHT” or by blowing a whistle.
3. Have students start again when you yell “GREEN LIGHT” or by blowing the whistle again.
4. Continue this practice and help students who are having trouble.
5. After the drill, review the starting and stopping techniques before moving on to the next activity.

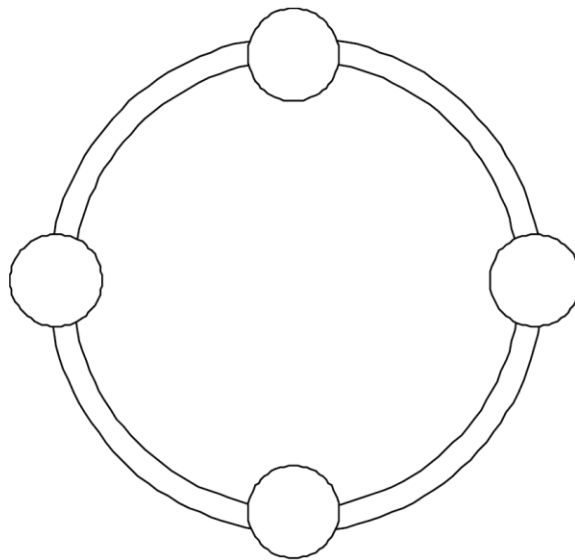
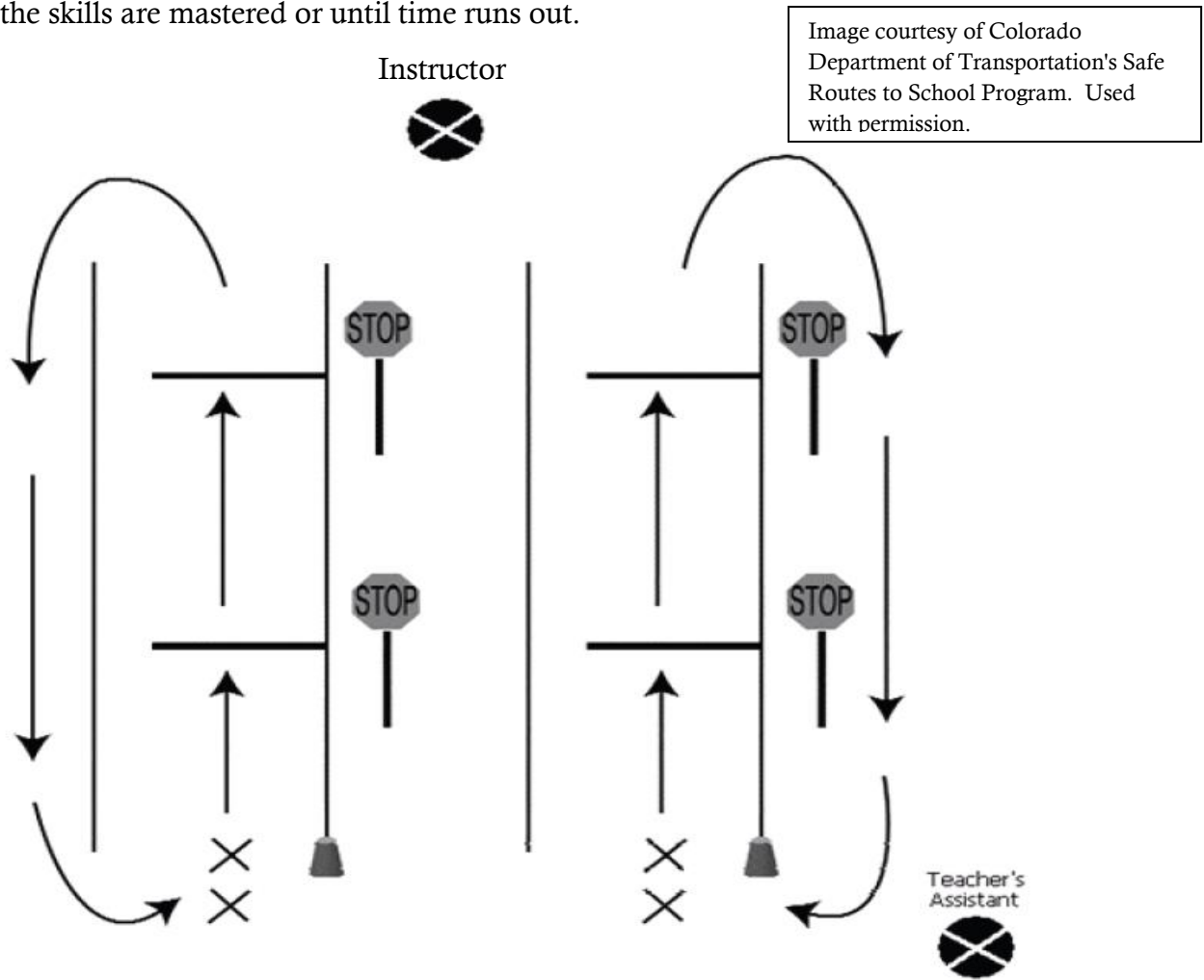


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Learning Activity 3-2 (Outdoors): Traffic Rules – Stopping

1. Set up the activity according to the illustration below.
2. The skills for this activity include: stopping at a stop sign or stop bar, looking left, right, left for traffic, and practicing the “power pedal” position (which is a down stroke of the pedal for a quick start).
3. Divide the students into groups, and line them up in a single file line behind five or six cones that face along lanes that are marked off with cones, ropes, or chalk. Call the first student in each line and have them ride down their lane looking for the stop signs and stop bars (these could be marked with tape or chalk across the lane).
4. They should say aloud “stopping” and give a hand signal (if they are able), stop and straddle their bike, and look left, right, left for traffic.
5. When clear, they may proceed to the next stop sign and repeat.

6. Have the next group of students begin as the first group is approaching the 2nd stop sign.
7. They should circle around the outside of their lane, to the end of the line; repeat until the skills are mastered or until time runs out.



Learning Activity 3-3 (Outdoors): Traffic Mix – Bicycle Control

In this activity, students practice controlling their bicycle, stopping on command and discovering the need for traffic rules. This activity allows the instructor to quickly assess the skills of all the students in a controlled environment. It places the students in situations that allow for their discovery of why traffic rules and laws are important. The activity is conducted in an open space defined by traffic cones or pavement markings, measuring a 25 foot square or a 40 foot diameter circle. The intent of this activity is for students to move freely about without touching each other or leaving the established boundaries.

1. Set up a 25 foot x 25 foot (or 40 foot diameter circle) using cones or chalk to establish the boundaries. The marked area can be larger depending on the number of students.
2. Have the students go through the ABC Quick Check taught in a previous lesson.
3. Call all students to the center of the defined area, identify the boundaries, introduce your start/stop signal (whistle, voice, megaphone, music); tell the students that in a minute,

they will begin moving slowly in any direction with the boundaries, being careful NOT to touch or run into anyone or their bicycles. When conducting this activity for the first time, you may want to have the students walk their bicycles first.

4. Have students line up on the outside corners or edges of the boundaries and allow them to enter the area 2-4 at a time, moving in any direction, and gradually building up the “traffic mix.” Remind them to be cautious and not touch each other. (Remove students who appear to demonstrate an inability to follow directions and have them wait outside the boundaries and be traffic cops. Not only is it a great management tool, but it will also help them recognize why certain actions are hazardous to themselves and others.)
5. When the “traffic” is getting difficult to flow, stop the class and ask them why: What would make it easier to keep moving? Should there be rules for traffic? What should the rules be?
6. Now proceed to have students move within the boundaries, following “the rules” of traffic by circulating in a counter clockwise pattern (staying on the right) and stopping on command.

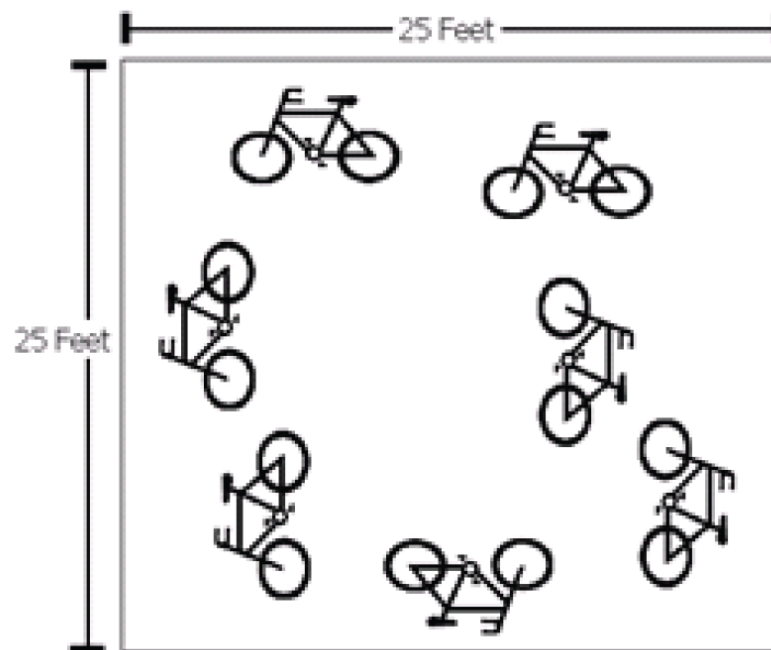


Image courtesy of Colorado Department of Transportation's Safe Routes to School Program. Used with permission.

Closure: Conduct a short discussion with students about the importance of the starting, stopping, and bike control skills practiced. Teacher Questions: Why do you think these skills are important? Do you think mastery of these skills will make you a better cyclist? Will these skills make you a better driver of a car someday? Why are traffic rules important to a cyclist and to a car driver? What would happen to cyclists if we did not have traffic rules? Preview the next lesson on bicycle handling skills.

Lesson 4

Focus: Bicycle Handling Skills

Materials: 10 helmets, 10 bicycles, parking lot area 90-100 feet long and 20 feet wide, tape measure, chalk, dome cones or flat markers (poly spots), large cones to mark starting lines, whistle, 100-foot measuring tape/marking wheel

Objectives: The students will be able to:

1. start and stop safely and without wobbling.
2. utilize their gears correctly in order to accelerate.
3. apply basic principles of balance and body control while riding in a straight line, around a curve, while scanning, and while avoiding hazards.
4. apply turning dynamics and scanning skills to a simulated traffic area.

Key Points:

- Always start in the “power pedal” position.
- Always use proper braking technique.
- Always step down from the saddle at a stop.
- Academic Language: turning dynamics, avoidance weave, scanning

Introduction to Lesson (Anticipatory Set/Indoors or Outdoors):

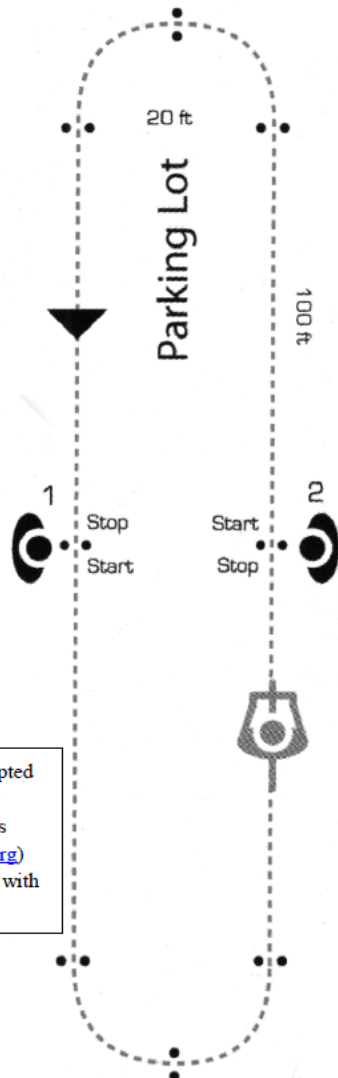
“Many on-bike drills can be practiced to promote safety and good bicycle handling skills. In today’s lesson, there is one basic set up (oval) for a succession of practice drills that simulate riding your bike in traffic and around your neighborhood. Let’s review the starting and stopping techniques we practiced in the last lesson. Then, we will begin a series of practice drills to help you learn more about riding bicycles safely.”

- Explain Starting Technique (Power Pedal Position)
 - Make sure rider is off of the seat and straddling the top tube.
 - Have students figure out which foot they want to start on (one foot is on the ground and the other will begin on the pedal).
 - Have students raise the pedal on the side of their starting foot up to the two o’clock position.
 - Start by simultaneously stepping off the grounded foot and stepping your weight onto the starting foot while lifting up to sit onto the saddle.
- Explain Stopping Technique
 - Stop by having pedals at 12 and 6 o’clock (pedals seen as hands on a clock).
 - Remove foot that is on the 12 o’clock position while slowing to a stop.
 - Step onto the ground and straddle the top tube; Repeat.

Learning Activity 4-1 (Outdoors): Starting/Stopping Drill

Purpose: To ensure that students can start and stop safely and without wobbling; to make sure students can use their gears correctly in order to accelerate.

Procedure: One at a time, students mount their bicycles and ride around the oval, starting and stopping four times through the cycle. As soon as the first rider leaves the first turn, the second rider may begin.



Starting position:

- Stand over the frame of the bicycle ahead of the saddle and keep both feet on the ground
- With the bike in a low, starting gear, put one foot in the power position (The 2 o'clock position)
- Push down on the power foot
- As the bike begins to roll forward, place the second foot on the second pedal and mount the saddle

Stopping:

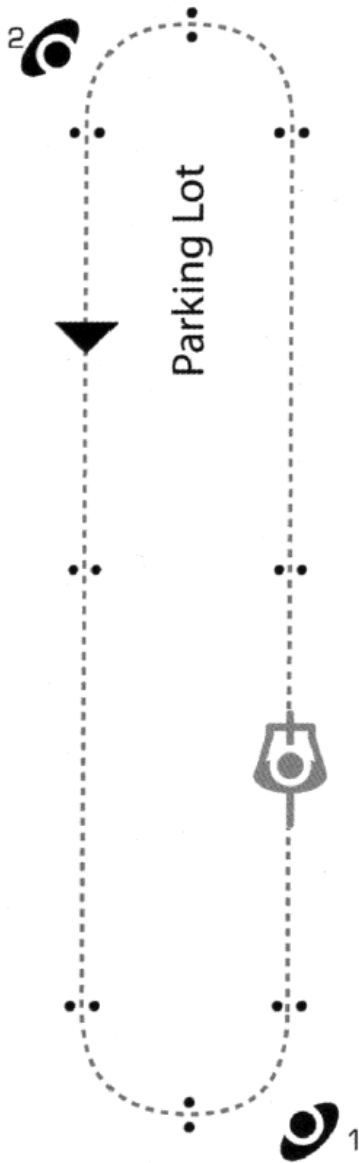
- Shift into a low (easy to pedal) gear, if applicable, before stopping
- Brake with both hands or if applicable, apply the coaster brake to bring the bicycle to a complete stop
- As the bicycle comes to a stop, turn the handlebars away from the foot that will touch the ground first. (This causes the bike to lean slightly to the side toward which the foot will touch the ground.)
- Return the pedals to the starting position

Notes: If students are riding geared bicycles, they should practice appropriate shifting along with proper starting and stopping. Gearing down before coming to a complete stop ensures that starting will be a smooth operation in a manageable gear. It is important for cyclists to be able to start smoothly and to gain speed when crossing intersections.

Students should be encouraged to turn their handlebars to the right and to place their right feet to the ground first when stopping. When stopping on roadways, it is safe to practice this 'right side' method so that the bike leans slightly away from traffic instead of into it.

Learning Activity 4-2 (Outdoors): Straight Line Drill

Purpose: To practice riding in a straight line a comfortable distance from a curb, edge, or line.



Procedure: Draw or mark a simulated curb (a straight line) three feet from each long side of the riding oval.

One at a time, students mount their bicycles and ride around the oval, demonstrating proper starting technique as they begin and proper stopping technique as they stop at the end.

Multiple students may be on the oval at once, but passing is not allowed. As soon as the first rider leaves the first turn, the second rider may begin.

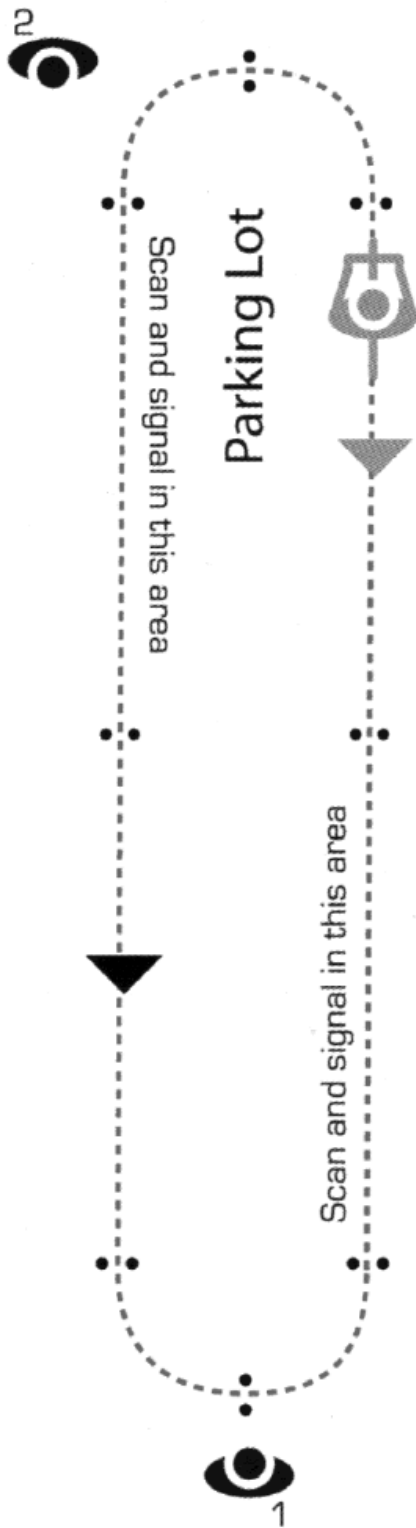
Students should be encouraged to direct their line of sight well ahead of them in order to ride in a straight line.

Students should be encouraged to slow down, downshift (if applicable), and lean into corners.

This drawing excerpted from the League of American Bicyclists (www.bikeleague.org) education curricula with permission.

Learning Activity 4-3 (Outdoors): Scan/Signal/Turn Drill

Purpose: To practice scanning behind while maintaining a straight riding line.



Procedure: Students begin to the right of instructor 1 (see diagram).

Students ride straight ahead, scan once before the midpoint of the first long side of the oval, signal left (left arm extended) for a count of two, and return both hands to the handlebar.

Students continue to ride in a straight line, scanning once again before the left turn.

Students make the turn, leaning their bicycles as they do so.

Students continue on the second side and second turn of the oval.

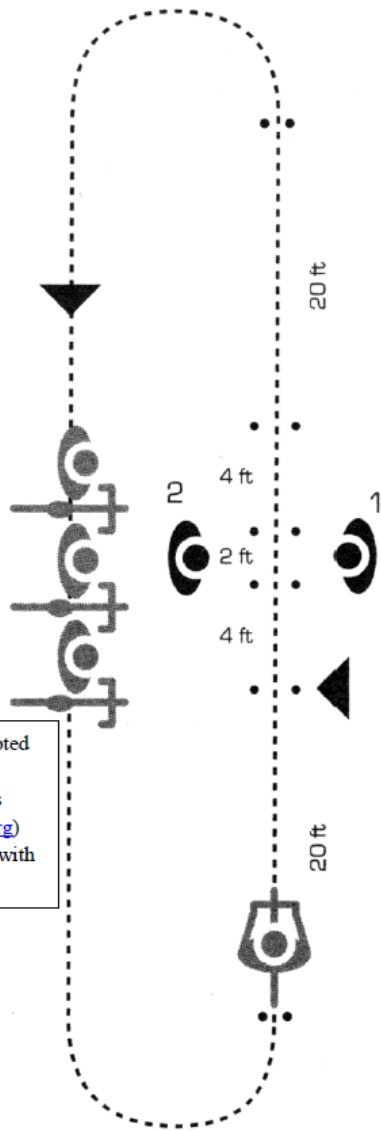
After each student has been allowed adequate practice (2-3 times around the oval), reverse the direction of travel and practice scanning, signaling, and turning right.

Notes: Most states require cyclists to signal 100 feet before making a turn.

This drawing excerpted from the League of American Bicyclists (www.bikeleague.org) education curricula with permission.

Learning Activity 4-4 (Outdoors): Quick Stop Drill

Purpose: To practice starting and stopping quickly, and to master the technique of stopping quickly. Braking quickly and adequately requires practice and good technique.



This drawing excerpted from the League of American Bicyclists (www.bikeleague.org) education curricula with permission.

Procedure: Talk with students about the importance of brakes. Discuss the difference between coaster brakes and hand brakes.

Have students identify the front and rear brake levers on the bikes they are riding. Make sure they understand that not all bicycles are set up so that the front brake is controlled with the right hand lever, and that brakes differ in sensitivity. It is important to understand the bike you are riding so that you do not cause yourself to crash by pitching over the handlebars.

Demonstrate for students the effects of applying only one brake (front or rear) at a time and discuss.

Demonstrate for students how to apply brakes safely to stop quickly. Ideally, this involves squeezing the front brake harder than the rear and responding to the actions of the bicycle appropriately.

Demonstrate the idea of weight transfer and how moving the rider's center of gravity can change the way the bicycle can stop quickly.

Instruct students to make three passes through the layout: one using the back brake alone, one using both brakes, and one using both brakes and a weight shift.

Instruct students to begin braking when the front wheels of their bicycles reach the first set of markers.

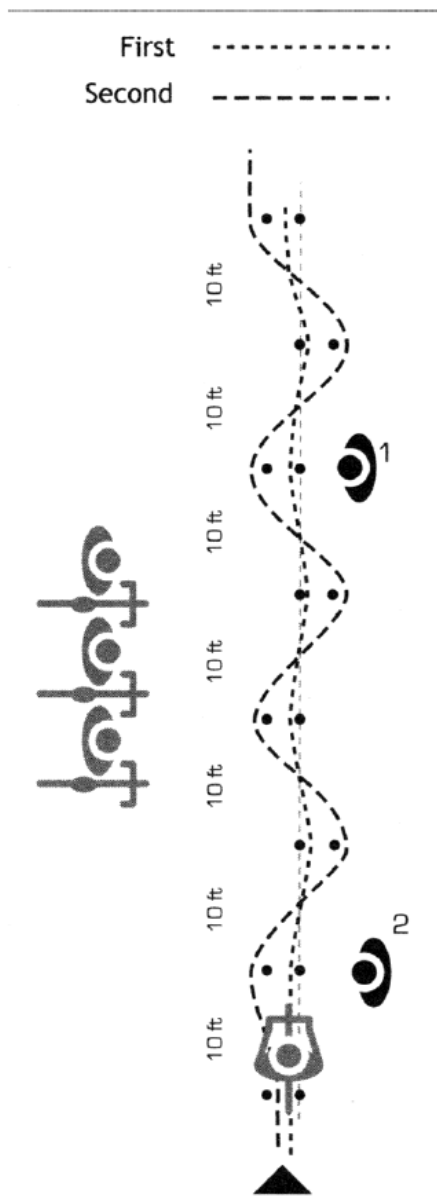
The goal is to stop the bicycle completely and to perform a correct stop, with one foot down, between the middle pairs of markers. Students then should re-mount using the proper

starting technique, and ride around the oval and approach the chute again.

Evaluate students on starting technique, use of both brakes, weight transfer and control of the bicycle, and coming to a complete stop with one foot down.

Learning Activity 4-5 (Outdoors): Avoidance Weave Drill

Purpose: To practice safe bicycle handling skills and avoiding hazards as they are approached by the front wheel. Cyclists must be alert to hazards and practice to avoid them in order to maintain a smooth pedaling rhythm.



Procedure: Students will ride through the Avoidance Weave layout in two different ways. The number of times they practice each type of maneuver is up to the instructor.

The first maneuver is to ride between the markers, which means the tires move little from side to side. The second maneuver requires the tires to move quite a bit from side to side, as the bicycle is required to move outside of the paired markers. See diagram.

Students should be encouraged to look up and ahead and to lean their bicycles to achieve the desired result for each run through the layout.

This drawing excerpted from the League of American Bicyclists (www.bikeleague.org) education curricula with permission.

Closure: Conduct a short discussion with students about the importance of the starting, stopping, bicycle handling, and hazard avoidance skills practiced. Teacher Questions: Why do you think these skills are important? Do you think mastery of these skills will make you a better cyclist? Do you think you feel comfortable now in controlling your bicycle? Do you feel comfortable enough to ride in your neighborhood or in city traffic? Preview the next lesson on rules of the road and practicing riding with traffic.

Lesson 5

Focus: Rules of the Road/Riding with Traffic

Materials: 10 helmets, 10 bicycles, dome cones, large cones, whistle, stop signs, chalk, student journals, 2008 SC Bicycle Laws (Appendix D), Bicycle Safety Tips (Appendix E)

Objectives: The students will be able to:

1. explain the laws that pertain to the safe operation of a bicycle in any setting.
2. recall the basics of traffic laws and how to turn at a simple intersection.

Key Points:

- Cyclists do better when they act and are treated as drivers of vehicles.
- A bicycle is a vehicle just like a car.
- Always follow the basic rules of the road no matter where you are riding a bike.
- Behaving predictably and confidently is necessary when riding on the streets.
- Riders must be aware of other traffic at all times (scanning and looking right-left-right).
- Cyclists must ride to the right, but not too close to the curb.
- Academic Language: right of way, “go with the flow,” intersection, vehicle, U-turns

Introduction to Lesson (Anticipatory Set/Indoors):

“Many cyclists, pedestrians, and motorists are not aware of pedestrian and bicyclist traffic laws. They do not know regulations concerning right-of-ways, correct roadway positions, turn signals, or lighting requirements. Reviewing the laws teaches you how to act in traffic and helps you anticipate the actions of pedestrians, cyclists, and motorists. By South Carolina state law, a cyclist has the right to use the roadway, but also has the responsibility to follow all the traffic laws. Riding against traffic is the most common cause of bike/car crashes for all cyclists. Traffic laws keep everyone safe – hand signals are essential to inform other road users of your intentions so they can predict your actions. Let’s review the rules for safe bicycle riding by looking at the SC Biking Laws and Bicycle Safety Tips.”

- **Ride in the Same Direction as Traffic (Bike Right – “Go With the Flow”)**
Ride on the right side of the road, in the same direction as the traffic next to you. Riding with the flow of traffic makes you more visible. Riding on the left side, against traffic, is illegal and dangerous.
- **Obey All Traffic Signs**
Know and obey all traffic laws. It is illegal and dangerous to ride through stop signs, red lights, stop traffic, ride next to several bikers, or ride the wrong way down a street.
(Show the students a stop sign)

- **Signal Your Turns**

Use the proper hand signals for left or right turns and for slowing or stopping – left turn signal is to stick out your left arm extended with left hand out; right turn signal is to extend left arm out with elbow bent so the hand is pointed up.

- **Ride on the Right**

Ride in the right lane with the flow of traffic. Ride as close to the right side of the right lane as safe and practical. Ride on the paved shoulder whenever one is suitable. These are exceptions to the “right side” rule: 1) when overtaking another bicycle or vehicle going in the same direction, 2) preparing for a left turn, or 3) avoiding hazardous conditions.

- **Ride in a Straight Line**

It’s easier for a motor vehicle driver to pass when you’re riding in a straight line. Don’t weave in and out of parked cars – you may disappear from motorists’ sight and get squeezed out or clipped when you need to merge back in traffic. At intersections, stay on the road – don’t ride in the crosswalk and suddenly reappear on the road again. A driver may not see you and hit you.

- **Riding on Sidewalks and in Crosswalks**

You are allowed to ride your bike on a sidewalk or crosswalk unless it is prohibited by official traffic control devices or local laws. When riding on sidewalks or crosswalks, you must observe all the rules applicable to pedestrians, yield the right-of-way to pedestrians, and give an audible signal (bell, horn, or your voice saying, “Hello, passing on your left”) before passing them. Riding on sidewalks, however, is not recommended. Many crashes between bikes and cars occur on sidewalks at driveways and street crossings, especially when bicyclists ride against the flow of traffic. You should always walk your bike in busy shopping areas or on downtown sidewalks.

Learning Activity 5-1 (Outdoors): Riding with Traffic Simulation

Purpose: To ensure that students can apply the rules of the road to a simulated traffic situation (or neighborhood).

Instructions: Class will follow the leader until the whistle is blown. After the whistle is blown, everyone can choose which way to go. Everyone must follow all rules, use hand signals for every change of direction, scan for traffic at each intersection, explain right-of-way and yielding. No U-turns are allowed.

1. Instructor will lead class through the course.
2. Instructor will blow whistle after the entire class has gone through the full course to signal that students will then make their own directions.
3. Instructor will blow whistle twice to stop the class in case of emergency, disorder, or the end of class (closure).

4. As an additional option, the instructor may designate the driveway as a hospital or a jail and place unsafe drivers there for a short period of time.

Notes. Use large cones to mark the inside and outside corners of the course. Use dome cones (or half tennis balls or chalk) to mark the center line. Use two stop signs as indicated (see diagram below). This is a large a complex course, so be sure to allow enough time to set up before the lesson.

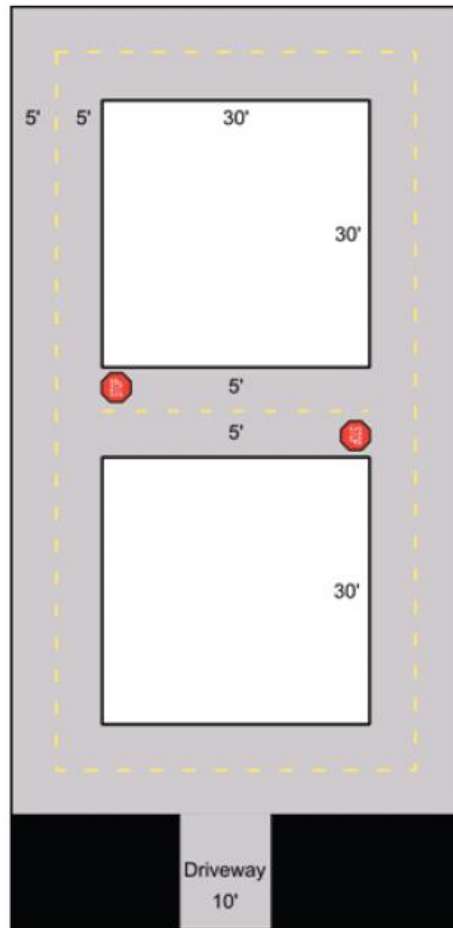


Image courtesy of Colorado Department of Transportation's Safe Routes to School Program. Used with permission.

Learning Activity 5-2 (Outdoors): Optional Advanced Activity

In addition to the activity described above, instructors can create a more advanced traffic situation (if time permits) by replicating a neighborhood. The neighborhood should consist of some or all of the following: 1) multiple intersections, 2) destinations such as parks, school, friends' houses, etc., 3) parked and moving cars, 4) traffic signs and signals, and/or 5) go on an actual neighborhood ride.

Closure. Review biking skills of scanning for traffic, looking right-left-right for cars entering intersections, riding on the right side of the road, riding in a straight line about three feet from the curb/side of the road. Preview next lesson on navigating the cycling environment. Ask students to write in journals about what they have learned about riding with traffic.

Lesson 6

Focus: Navigating the Cycling Environment

Materials: 10 helmets, 10 bicycles, parking lot area 90-100 feet long and 20 feet wide, 100-foot tape measure, chalk, dome cones or flat markers (poly spots), large cones to represent stop signs and other traffic signals

Objectives: The students will be able to:

1. apply the basic principles of balance and control to riding on sidewalks and streets.
2. identify the appropriate procedures for scanning and signaling in sequence.
3. recall the principles of riding bikes from a driveway, through an intersection, and crossing streets.

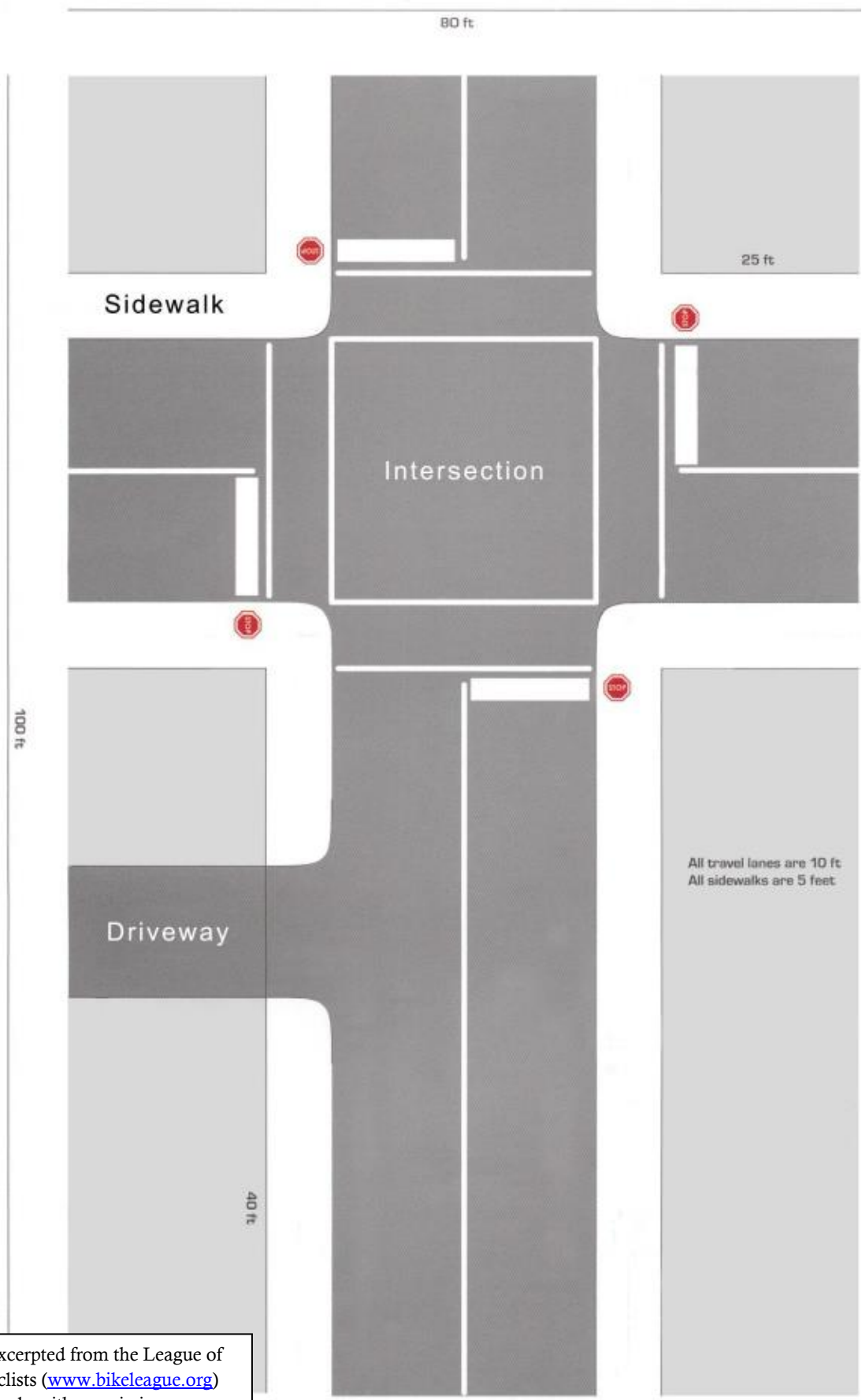
Key Points:

- Proper hand signals in biking are essential for safety and to avoid injury.
- When using sidewalks for bicycle travel, cyclists are expected to cross intersections by walking within crosswalks (act like pedestrians).
- When exiting a driveway, a bicyclist should always look right-left-right and then signal his/her turn into the road.
- Bicyclists have three choices at an intersection: riding straight through the intersection, taking a left turn, or taking a right turn.
- Academic Language: hand signals, traffic signals, pedestrians, intersections

Introduction to Lesson (Anticipatory Set/Outdoors):

“A bicycle is a legal vehicle in the state of South Carolina: True or False (True!). In most states, including South Carolina, bicycles operating on the road are considered vehicles. To be safe and legal, bicyclists must follow traffic rules and use hand signals. Doing so makes cyclists predictable to motorists and keeps everyone safer. In this lesson, we will review the practices of scanning and signaling, street crossings, entering the street from a driveway, and crossing intersections. We will practice these skills by using another type of neighborhood simulation outdoors.”

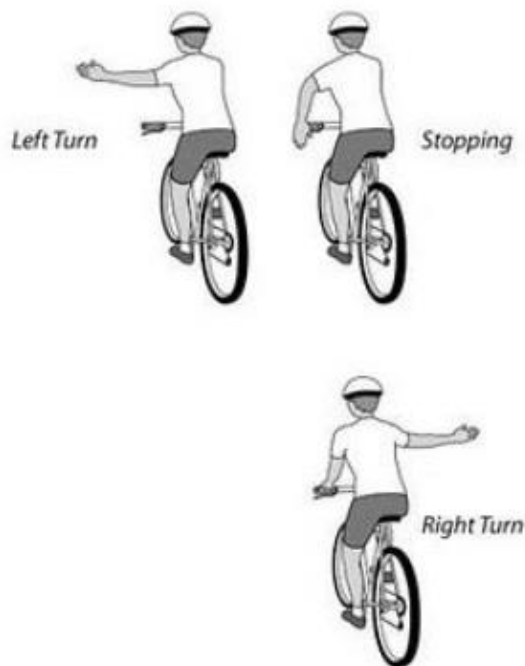
Notes on Parking Lot Diagram for Lesson 6. Diagrams are provided to give physical education teachers an idea of how the Lesson 6 learning activities may be laid out in a parking lot or on another paved surface. Exact replication of this diagram is not necessary – but care should be taken to include essential elements and to allow student groups to practice comfortably. Sidewalk chalk is excellent for the drawing of diagrams in a parking lot. Tennis ball halves make excellent course markers (standard: placed 10 inches apart), but damp sponges or chalk marks may be substituted. Markers should not create a hazard when run over and should be close enough to the ground not to impede pedaling.



This drawing excerpted from the League of American Bicyclists (www.bikeleague.org) education curricula with permission.

Learning Activity 6-1: Signaling Practice

- Practice signaling without bicycles to promote student attention.
 - Align students shoulder-to-shoulder with space between them.
 - Teacher should demonstrate the proper technique for signaling right and left turns and for stopping – teacher should face direction students are facing.
 - To signal right turn, extend right arm parallel to ground to the right.
 - To signal left turn, extend left arm parallel to ground to the left.
 - To signal stopping, cyclists signal with an extended left arm, the upper portion of the arm parallel to the ground and the lower arm perpendicular to the ground.
 - Practice signaling for a stop, encouraging students to return both hands to the bicycle handlebar in order to properly apply the brakes.



This drawing excerpted from the League of American Bicyclists (www.bikeleague.org) education curricula with permission.

- Practice scanning (over the shoulder) and signaling in sequence
 - Discuss keeping both hands on the bicycle handlebars when making turns.
 - Demonstrate scanning behind to determine traffic flow and to indicate upcoming signals.
 - Signals should be held for at least two seconds, scan once more for safety, and then perform the indicated maneuver.
- Practice scanning, signaling, and scanning again for left and right turns in groups of three; repeat these practices individually on bicycles with the use of the intersection layout.

Learning Activity 6-2: Street Crossing Practice

- Use the intersection layout to demonstrate using crosswalks at intersections to cross from one sidewalk to another.
 - Separate the class into two groups so they may practice at two different intersections with crosswalks.

- This is a predictability issue: people using crosswalks should act as pedestrians.
- Students should practice traveling on the sidewalk and stopping at the intersection, dismounting their bicycles, and crossing in the crosswalk on foot; students may mount their bicycles when once again on the sidewalk at the far side of the intersection.

Learning Activity 6-3: Entering Street from Driveway Practice

- Use the intersection layout to demonstrate the procedure for entering the street from a driveway.
 - Have students ride one by one to the edge of the driveway, look left-right-left, and signal and turn right to ride along the right side of the street. Have students practice this in 2-3 groups at 2-3 designated driveway areas.
 - Students should return to the end of the line to repeat the procedure.
 - Once students have had sufficient practice exiting the driveway to the right, have them practice turning left from the driveway, crossing the street, and riding along the right side of the street.

Learning Activity 6-4: Crossing Intersections Practice

This drill gives students practice at stopping at intersections, making right and left turns at intersections, and proceeding straight through intersections. The teacher should explain and demonstrate the procedure for this drill, which entails riding continually and not pausing between parts 1, 2, and 3:

1. Making a right turn:

- Enter the street and ride on the right side to approach the intersection.
- At the intersection, come to a complete stop and signal right.
- Scan left, right, and then left again, and make the right turn.
- Ride for several yards and make a U-turn to return to the intersection in the right lane.

2. Riding straight through:

- Approach the intersection.
- At the intersection, come to a complete stop and scan left, right, and then left again.
- Cross the intersection.
- Ride for several yards and make a U-turn to return to the intersection in the right lane.

3. Making a right turn:

- Approach the intersection in the right lane, but scan, signal and move to the left third of the right lane before stopping.
- Come to a complete stop and scan left, right, and then left again.
- Cross the intersection and turn left.
- Continue to ride along the right side of the street and stop.

4. Notes: Students performing this drill should proceed one at a time so that they ride in a single file line with significant space between riders. The teacher should position herself/himself in the center of the intersection in order to monitor all parts of the layout. As students complete the drill, the teacher may want to direct students to the start of the drill to perform it multiple times, or it may be better to direct students to lap a larger area once or twice between rotations through the drill layout.

Closure. Review the practices of scanning and signaling, street crossings, entering the street from a driveway, and crossing intersections. Conduct a short discussion on parental permission for riding bicycles in the streets and in students' neighborhoods. Ask students if they have parental permission to ride in the streets. Encourage students to share the information learned in this lesson with their parents. Preview next lesson on navigating and being seen by motorists (indoor lesson; may be used in a different sequence depending on the weather).

Lesson 7

Focus: Navigating the Community/Being Visible in Traffic (Indoor Lesson)

Materials: 10 helmets, 10 light/dark t-shirts, 10 reflective vests, computer/internet access, retro-reflective material, flashlight

Objectives: The students will be able to:

1. choose the best routes to school or home on a bicycle and a car.
2. discuss what it means to be visible in traffic as a biker.

Key Points:

- Become familiar with the traffic patterns and transportation routes for both bicycles and cars near your home, your school, and your friends' houses.
- Bright and light colors, such as white, yellow, orange, neon, and hot pink are the most visible colors for bikers to wear; stripes are also attention-getters; Helmets and backpacks should also be brightly colored.
- Students should avoid riding bikes at night or at dusk when visibility is low.
- Academic Language: neon, navigation, retro-reflective

Introduction to Lesson (Anticipatory Set/Indoor):

“We are going to discuss the routes you take to school when you ride the bus, when you ride in your parents' cars, or when you ride your bicycle. These routes may not be the same. In addition, we are going to discuss and demonstrate the importance of being seen easily by automobile drivers while you are biking in traffic. To do this, we are going to do one activity that focuses on navigation, and two activities on being visible in traffic.”

Learning Activity 7-1: Navigating the Best Route

This activity is a great opportunity to get your local bicycling club or parents involved with the biking curriculum. As students are using bicycles to get to and from school, to activities, and to friends' houses, they should learn how to choose appropriate routes.

1. Students should make a list of places near their homes and their school where students frequently visit.
2. Ask the students what makes a good route. Volunteers may work with students to choose appropriate bicycling routes taking in consideration bicycle trails, bike lanes, traffic speeds, crosswalks, signalized intersections, and street shoulders. It is important to keep in mind the best bicycling routes are not always the best driving routes.
3. **Note:** Internet mapping websites have begun integrating bicycling as an option when one enters a location for directions. Local communities may also have mapping software. Students may be able to use the internet to generate a route.

4. Have students present their routes to the class and review the conditions they encounter.

Learning Activity 7-2: Being Seen by Drivers

When bicycle and pedestrian-related crashes occur, it is often because the motorist fails to see the cyclist or pedestrian. Bright and light colors, such as white, yellow, orange, neon, and hot pink are the most visible colors for bikers to wear; stripes are also attention-getters; Helmets and backpacks should also be brightly colored. This activity shows students why it is important to be visible when riding a bike.

1. Dim the lights in a classroom and have the students close their eyes. Have four of the volunteers, some wearing light-colored t-shirts (white, yellow, orange) and some dark t-shirts (navy blue, brown, black) stand side-by-side in a row at the front of the room. Have the fifth volunteer stand against the wall at the side.
2. Have the class open their eyes. Ask the class whom they see: First? Second? Last? Did anyone mention the one on the side of the class? If not, why?
3. Ask students which colors were the most visible. Explain to students which are the most visible colors.
4. Ask students what, other than colors, can make them more visible while riding their bicycles on the streets (reflectors, retro-reflective materials, and lights). Equally important is where motorists are looking for the students.
5. Explain to students why it is their responsibility to make sure motorists can see them. If a crash occurs, regardless of fault, the cyclist or pedestrian is most likely to be hurt.
6. Show students retro-reflective material. Turn the lights out, and shine a flashlight on the material to show the students how the material stands out.

Learning Activity 7-3: Where Drivers Look

It is important to teach students where drivers look when they approach driveways and intersections. Many times, crashes occur because the bicyclist was not clearly visible or the driver never looked in the direction of the bicyclist. If a bicyclist is approaching a conflict point from an area where motorists are not looking for hazards, the bicyclist must be especially wary of a turning motorist. Discussion questions (or journal writing prompts) for this activity include:

1. Where do drivers look when they are driving?
2. What about turning motorists – where do they look?
3. What are these drivers looking for?
4. How can you make sure a motorist sees you when you are riding your bike?
5. How can you be predictable in traffic?
6. What can you do to prevent a crash when a motorist is not looking for you?
7. Discussion (or role playing) of bicycle crashes and how to avoid them.

Closure. Review the concepts of navigating routes to school and home and being visible while riding bicycles in the streets. Provide several minutes for student to write in their journals about how they can be more predictable and visible in traffic. Preview next lesson on bike parking and locking.

Lesson 8

Focus: Bike Parking and Locking

Materials: 10 helmets, 10 bicycles, 10 bicycle locks (varying types of locks)

Objectives: The students will be able to:

1. properly select a parking location and locking technique.
2. apply the principles of correctly parking and locking a bike to a bike rack.
3. practice parking and locking bikes in neighborhood or school areas.

Key Points:

- Bike theft can happen, but with appropriate precautions you can keep your bike safe.
- Bikes should be parked in designated bicycle parking areas that are well lit and secure.
- Bike frames should be secured to a post of something stationary.
- Helmets also need to be stored properly; in school, they may be hung on a coat hook by the straps or placed on a shelf.
- Academic Language: bike rack, bike lock, bike stand, deter

Introduction to Lesson (Anticipatory Set):

“Why is knowing where to park your bike and knowing how to lock your bike important things for you to know? What might happen if you leave your bicycle unlocked? (might get stolen) You should never leave your bike unlocked even if it seems safe or if you’re only leaving for a short time. You can never prevent bike theft, but a good lock job will strongly deter most thieves.”

Learning Activity 8-1: Parking and Locking Your Bike

1. Set Up: Have a bike standing where the students are all able to gather around it and see it and the teacher.
2. Show and tell about different types of locks and the related benefits of each (it helps to have an example of each of the following for demonstration purposes):
 - Cable lock – easy to cut, but it can run through both wheels and frame and even saddle, and around posts and trees
 - U-lock – hard to break but harder to lock all parts of bike with it
 - Chain lock – not easily cut, but use of combination lock is necessary
3. Highlight parts of bike that should be locked: frame is most important; lock one or both wheels if possible; if possible, lock saddle too or use a saddle cable
4. Point out some common bike locking mistakes: just locking a wheel, but not the frame; not getting lock completely closed; locking handle bars or seat post; locking to a short object like a parking meter with a cable lock; accidentally missing either the frame or the rack when weaving a cable or chain through the rack

5. Emphasize that students should lock only to designated bike parking infrastructure rather than to trees, fences, sign posts, etc., because it may be illegal
6. Remind students to keep their combination or key (for lock) in a safe place and have a spare key available as a backup.



Figure 8.1 Examples of cable, U-shape, and chain bicycle locks.

Learning Activity 8-2: Parking and Locking Your Bike - Application

Students should practice using locks when doing a neighborhood ride with the teacher; also practice finding appropriate parking spots for bicycles in nearby shopping centers, etc.

Closure. Review the concepts of locking and parking bicycles properly in all types of areas, and with all types of bicycle locks available. Provide several minutes for student to write in their journals about how they can be more responsible for preventing their bikes from being stolen and how to find appropriate parking areas for bicycles. Preview the next lesson about riding on a path instead of in the neighborhood or on the streets.

Lesson 9

Focus: Riding on a Multi-Use Path

Materials: 10 helmets, 10 bicycles, local park bike path (Cherry Park)

Objectives: The students will be able to:

1. successfully ride on a multi-use path in the local community.
2. identify the rules for riding on a multi-use path.

Key Points:

- The rules still apply on a multi-use path.
- Be aware and respectful of other users on the path.
- A bike path that parallels a roadway (like a sidewalk) can be more dangerous than riding in the road (watch for turning cars).
- A rider must be aware of various hazards like loose gravel and cracks.
- Academic Language: multi-use path

Introduction to Lesson (Anticipatory Set):

“When bikers are choosing locations for bicycle rides, often they will choose a multi-use path located in a local park or greenway. A multi-use path is usually paved and is a shared byway for non-motorized traffic including walkers, joggers, roller bladders, bikes, skateboards, and/or scooters. It is important to follow the rules when riding on a multi-use path because they are very popular places to ride, which means they are heavily used. Therefore, it is important for all users to adhere to the same rules to keep it safe for everyone.”

Learning Activity 9-1: Review Multi-Use Path Rules

Review of the rules for multi-use path bike riding:

1. Always ride as far to the right as possible (go with the flow).
2. Always pass slower traffic on their left side using the following steps:
 - Look over your left shoulder to check for faster traffic coming up behind you.
 - If it’s clear, announce your intention to pass by loudly saying “passing on your left.”
 - Give other path users at least three feet of clearance when passing while being mindful of oncoming traffic in the other direction.
3. Limit your speed to 15 mph or less.
4. Look out for hazards:

- Loose material like gravel, sand, or glass.
 - Unpredictable path users such as small children or dogs.
 - Blind curves and intersections.
 - Underpasses – make noise even though you don't see anyone coming.
 - Slippery surfaces – wet or icy bridges, metal plates.
5. Always signal turns.
 6. Always stop at intersections with the road or driveways.
 7. Slow to walking speed or dismount at crosswalks.
 8. Even if you have the right-of-way, make eye contact with drivers before proceeding at an intersection.
 9. Watch out for:
 - Turning motorists (right turn in your lane or left turn in oncoming lane).
 - Motorists exiting driveway or side street (especially when cyclist is on sidewalk)

Learning Activity 9-2: Multi-Use Path Ride

Teacher leads student in a bike ride on a local multi-use path (Cherry Park):

Closure. Provide paper/pencil for each bike rider at end of multi-use path ride. Ask students to write a “Three-Minute Paper” the differences between the rules for riding on the streets and the rules for riding on a multi-use path. After collecting the assessment papers, conduct a discussion reviewing the rules of riding on a multi-use path and how they are different from the rules for riding in traffic. Preview the next lesson, which will be the set-up of stations for the bicycle rodeo for the 5th grade classes. Remind students that a post-test will be administered after the bicycle rodeo/next lesson is completed.

Lesson 10

Focus: Bike Rodeo Stations, Post-Test Administration

Materials: 10-20 helmets, 10-20 bicycles, bike air pumps, parking lot area 90-100 feet long and 20 feet wide, tape measure, chalk, dome cones for task cards at each station, large cones to mark boundaries of rodeo stations, Bike Rodeo Station Guide (Appendix F)

Objectives: The students will be able to:

1. use peer teaching to assist 5th graders in learning the principles of bicycle safety.
2. set up stations for bicycle rodeo, being responsible for all materials and task cards at each station.
3. review principles of helmet fitting, bike fitting, riding in traffic, riding on a bike path, traffic rules, and other safety concerns.

Learning Activity 10-1: Stations (with Task Cards for each)

- Station 1: Helmet Check – Eyes, Ears, and Mouth
- Station 2: Bicycle Fitting – Raise/Lower Saddle
- Station 3: Wheel Shop – Air, Brakes, Chain
- Station 4: Following Rules – Signals, Road Signs, Turns
- Station 5: Ride Right – Balance, Starting/Stopping, Riding Straight, Scanning
- Station 6: Safe Places to Wheel – Being Visible, Avoiding Hazards

Learning Activity 10-2: Post-Test for Bicycle Safety Comprehension

Teacher will administer the same test used for the pre-test during Lesson 1. The results of this post-test will be compared with the pre-test to determine student learning and the impact of the teacher. Pencils and copies of the post-test must be provided, as well as a comfortable place to take the post-test (classroom with desks).

Closure. Teacher should review unit on bicycle safety and why it is important to have this unit in the physical education curriculum. The students should be encouraged to ride bicycles outside of school, as well as finding safe routes to ride bicycles to and from school. They should also encourage their parents to participate in bike riding for themselves or for the entire family. The teacher should provide the names of local businesses that have bikes available for purchase that are reasonably priced.

References

Bicycle Helmet Safety Institute: www.bhsi.org

Bicycle Transportation Alliance. (2003). Safe routes for kids: Bicycle safety program curriculum (3rd ed.). Portland, OR: Author. Retrieved: <http://btaoregon.org/wp-content/uploads/2011/11/curriculum-BSE.pdf>

Brain Injury Law Center: www.brain-injury-law-center.com/about-us/helmets-for-kids.html – dedicated to providing free helmets to children under the age of 19 (proof of age may be required; request must come from parent or guardian)

Colorado Department of Transportation Safe Routes to School Program. (2013). *Bicycle safety: 3rd through 6th grade*. Retrieved: <http://www.coloradodot.info/programs/bikeped/safe-routes/lesson-plans/CDOTSafetyLessonPlansGrades36.pdf>

League of American Bicyclists: www.bikeleague.org

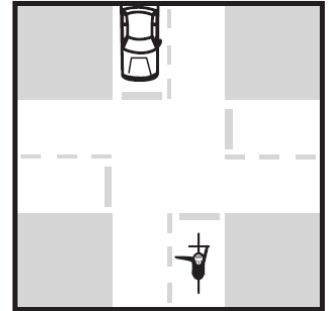
Pennsylvania Department of Transportation. (2011, August). *Pennsylvania bicycle education lesson plans: Sixth grade*. Pennsylvania Safe Routes to School. Retrieved: <http://www.saferoutespa.org/sites/default/files/Final%20Sixth%20Grade%20Lesson%20Plans.pdf>

Appendix A: Bicycle Pre- and Post-Test

(Bicycle Transportation Alliance, 2003)

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

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



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

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

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

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



A. _____



B. _____



C. _____



D.
Color:
Action:

Color:
Action:

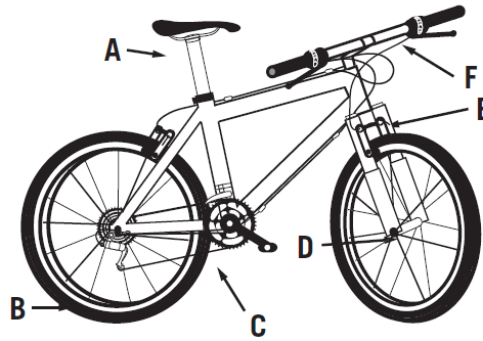
Color:
Action:

4. You are riding on the street and a stoplight that is 25 feet away turns yellow. Mark the **one** answer that best explains what you should do.

- A. Keep your current speed and if you see that the intersection is clear, go through it
- B. Slow down and stop at the light
- C. Continue going fast and stop wherever the light turns red
- D. Go faster and try to make it through the intersection

5. It is important to test if your bike is safe before each ride. Match the **six** things in the column to the left with the bike diagram on the right.

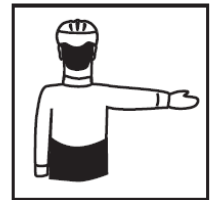
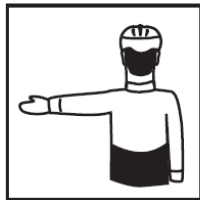
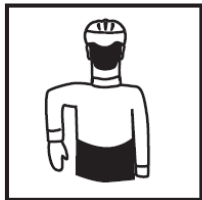
- ___ Quick release
- ___ Chain
- ___ Handlebars
- ___ Brakes
- ___ Seat
- ___ Tires



6. Mark the **three** most common situations when bicycle collisions occur.

- A. Bicyclist is riding in the opposite direction to the proper flow of traffic
- B. Bicyclist is riding in the same direction to the proper flow of traffic
- C. Bicyclist coming out from a driveway or sidewalk onto the street
- D. Bicyclist does not obey the proper rules of the road
- E. Bicyclist stays to the right side of the roadway
- F. Bicyclist rides through a green light

7. Label the hand signals with their proper meaning.



A. _____

B. _____

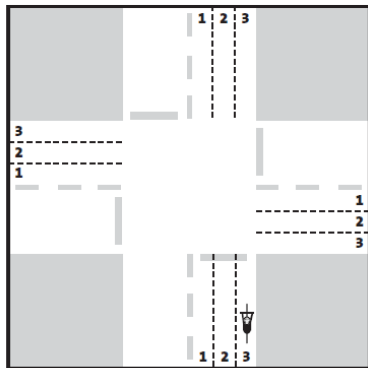
C. _____

D. _____

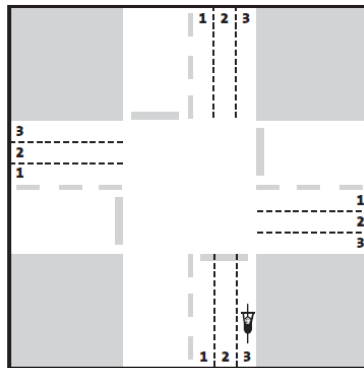
8. Mark the **five** most important actions or rules of the road that all bicyclists must follow for safe riding.

- A. Obey traffic laws and signs
- B. Always use hand signals
- C. Always ride on the sidewalk
- D. Wear a properly fitted helmet
- E. Check your bike for safety
- F. Ride on the left side of the street against traffic
- G. Use lights and bright clothing when riding at night
- H. Always let cars go before you at intersections

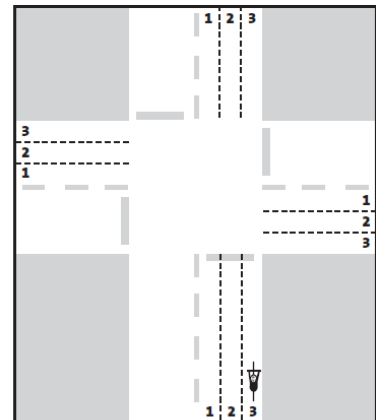
9. The intersection below is labeled with positions 1, 2, and 3 to help remind cyclists where to ride when biking through an intersection. Starting at the bicycle, draw your path through the intersection for:



Right turn



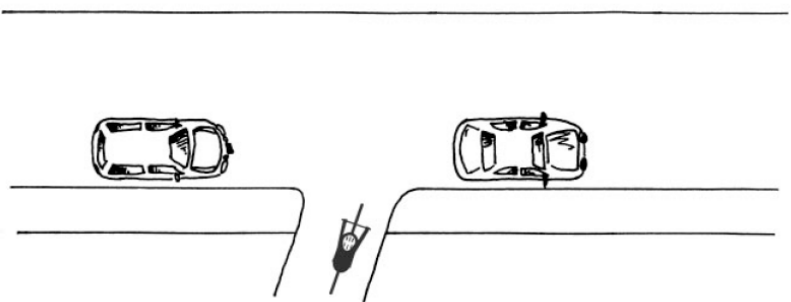
Going straight



Left turn

10. Mark the **three** most important actions to safely exit the driveway below.

- A. Use your brakes without skidding
- B. Stop at the end of the driveway
- C. Look both ways before riding on to the street
- D. Watch out for pedestrians on the sidewalk
- E. Ride fast onto the street

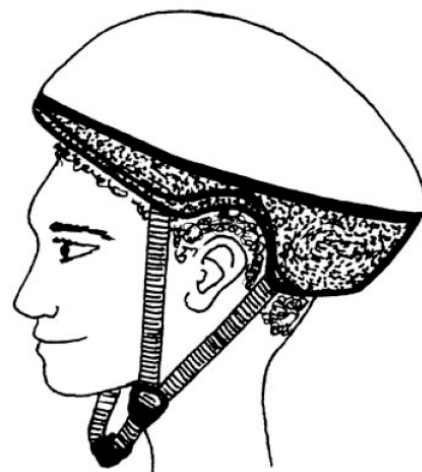


11. Describe three actions that would make this a better-fitting helmet. Use words and arrows.

- A. _____

- B. _____

- C. _____



Place a line pointing to a part of the bike listed below. Letter the line with the correct bicycle part.

Frame

- A** top tube
- B** down tube
- C** head tube
- D** seat tube
- E** front fork
- F** seat stays
- G** chain stays
- H** wheel dropouts

Drive Train

- I** pedal
- J** cranks
- K** chainwheel
- L** chain
- M** rear derailleur
- N** freewheel/cassette

Other Components

- O** tire
- P** spokes
- Q** rim
- R** seat
- S** seat post
- T** handle bars
- U** brake cables
- V** brake levers
- W** shift levers



Appendix B: Helmet Guide



Does your helmet fit properly?

Take the Helmet Fit Test

1



Eyes: Put the helmet on your head. Look up. You should see the bottom rim of the helmet.

2



Ears: Make sure the straps form a 'V' under your ears when buckled. The straps should be a little tight but comfortable.

3



Mouth: Open your mouth as wide as you can. Does the helmet hug your head? If not, tighten the straps.

Now you're ready to roll!

Appendix C: ABC Quick Check Guide

The **A** **B** **C** Quick Check

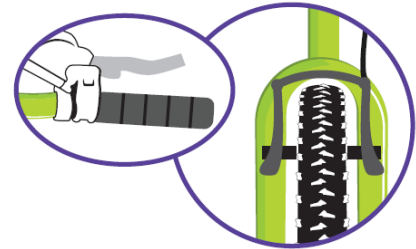
A is for air:

- ✓ Check the air pressure, spin the wheels and make sure the tires are not worn out.



B is for brakes:

- ✓ Check to make sure coaster brakes will stop the bike by spinning the back wheel and applying the brake. If the bike has hand brakes check to see that the levers don't hit the handlebars when squeezed. Lift one tire up at a time and spin it; squeeze the levers to see if the tire stops. The brake pads should be clean, straight and contact the rims properly.



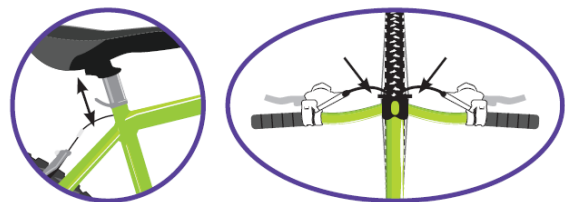
C is for Cranks, Chain, and Cogs:

- ✓ Grab the crank arms and try to wiggle side to side. There should be no movement. Spin the pedals and cranks to see if the chain drives the rear wheel. The chain should look like metal not rust or black gunk. If the bike has gears check to make sure the gear levers and derailleurs (gear-changing mechanism) work to shift the chain between gears.



Quick Refers to the Quick Release:

- ✓ Some bikes have quick releases on the wheels or the seat post. Check to make sure they are tight and closed properly.



Check:

- ✓ After making sure the seat and handlebars are tight and the proper height, have the child ride the bicycle around the parking lot and check that everything works well.

Appendix D: 2008 SC Bicycle Laws

The New Law **Summary of H3006 Bicycle Law Revisions**

H3006 - The Bicycle Safety Act - amends Article 27, Chapter 5, Title 56 of the 1976 Code as indicated below. The Act is designed to provide greater safety for bicyclists on South Carolina roads and to bring South Carolina statutes into greater conformity with the Uniform Vehicle Code.

Article 27 Bicyclists and Users of Play Vehicles; Rights and Duties

Section 56-5-3410. The provisions of this article are applicable to bicycles whenever a bicycle is operated upon any highway or upon any path set aside for the exclusive use of bicycles, subject to those exceptions stated in this article.

Section 56-5-3420. A person riding a bicycle upon a roadway must be granted all of the rights and is subject to all of the duties applicable to the driver of a vehicle by this chapter, except as to special provisions in this article and except as to those provisions of this chapter which by their nature can have no application.

Safe Operating Distance (new statute)

Section 56-5-3435. A driver of a motor vehicle must at all times maintain a safe operating distance between the motor vehicle and a bicycle.

Anti-Harassment of Cyclists (new statute)

Section 56-5-3445. It is unlawful to harass, taunt, or maliciously throw an object at or in the direction of any person riding a bicycle. A person who violates the provisions of this section is guilty of a misdemeanor and, upon conviction, must be fined not less than two hundred fifty dollars or imprisoned not more than thirty days, or both.

Clearer signaling for cyclists (revised statute)

Section 56-5-3480. (A)(1) A bicyclist shall indicate a right turn by extending the left

arm upward, by raising the left arm to the square, or by extending the right arm horizontally to the right.

(2) A bicyclist shall indicate a left turn by extending the left arm horizontally.

(3) A bicyclist shall indicate stopping or decreasing speed by extending the left arm or the right arm downward.

(B) A bicyclist is not required to give signals provided for in subsection (A) continuously if the hand or arm is needed to control the bicycle.

Clarification of lane positioning (revised statute)

Section 56-5-3430. (A) Except as provided in subsection (B), every bicyclist operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable. A bicyclist may, but is not required to, ride on the shoulder of the roadway in order to comply with the requirements of this subsection.

(B) A bicyclist may ride in a lane other than the right-hand lane if only one lane is available that permits the bicyclist to continue on his intended route.

(C) When operating a bicycle upon a roadway, a bicyclist must exercise due care when passing a standing vehicle or one proceeding in the same direction.

(D) Bicyclists riding bicycles upon a roadway shall not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles.

Elimination of the mandatory sidepath law and clarification of right-of-way in bike lanes

Section 56-5-3425. (A) For purposes of this section, 'bicycle lane' means a portion of the roadway or a paved lane separated from the roadway that has been designated by striping, pavement markings, and signage for the preferential or exclusive use of bicyclists.

(B) Whenever a bicycle lane has been provided adjacent to a roadway, operators of: (1) motor vehicles may not block the bicycle lane to oncoming bicycle traffic and

shall yield to a bicyclist in the bicycle lane before entering or crossing the lane; and (2) bicycles are required to ride in the bicycle lane except when necessary to pass another person riding a bicycle or to avoid an obstruction in the bicycle lane. However, bicyclists may ride on the roadway when there is only an adjacent recreational bicycle path available instead of a bicycle lane.

The statute mandating all bicycles to be equipped with a bell was eliminated.

The statute making it a misdemeanor for a bicycle to not be equipped with proper brakes, reflectors or lights was replaced with a fine of \$25.

Imposition of more severe penalties for motor vehicles that violate provisions within Article 27 pertaining to bicycles (revised statute)

Section 56-5-3500. (A) Except as otherwise provided, in the absence of another violation being cited, a violation of this article by the driver of a motor vehicle is subject to a civil fine of up to one hundred dollars unless a bicyclist is injured as a result of the violation.

(B) In the absence of another violation being cited, a person driving a motor vehicle who violates a provision of this article and the violation is the proximate cause of a:

(1) minor injury to a bicyclist, must be assessed a civil fine of up to five hundred dollars; or

(2) great bodily injury, as defined in Section 56-5-2945, to a bicyclist, must be assessed a civil fine of not more than one thousand dollars.

Definition of a bicycle (revised statute)

"Section 56-5-160. A bicycle is a device propelled solely by pedals, operated by one or more persons, and having two or more wheels, except children's tricycles." This revision ensures that adult bicycles using more than two-wheels are covered by the statutes in Article 27, Section 56. ●



For more information about the law, contact the Palmetto Cycling Coalition at www.pccsc.net or write Peter Wilborn at pwilborn@scbikelaw.com.

Appendix E: Bicycle Safety Tips

Ride Your Bike Safely

Bicycling can be a fun way to get to school. Review these safety points before you ride.

Before riding your bike

- **Talk with your parents.** Are you allowed to ride by yourself or with friends? What route will you ride to school?
- **Practice riding the route to school with your parents.** Doing so will help you know where to stop, signal, and walk your bike.
- **Dress to be seen.** Wear brightly colored clothes and reflective gear, such as a reflective vest, book bag tags, or pant leg straps. Remember, just because you can see a driver doesn't mean the driver can see you.
- **Tie and tuck.** Loose laces and pant legs can get caught up in your bike and cause you to crash. Tie shoelaces and tuck the hanging ends into your shoe, and tie wide pant legs with a reflective strap or tuck them into socks.
- **Check your bike for safety.** Make sure the tires have enough air, the brakes and gears work, the chain isn't loose, and the wheels and bolts are tight. You should also have reflective gear on your bicycle. Have your parents help you fix anything that's not right.
- **Put on your helmet.** Make sure it's properly adjusted, fitted, and buckled. See sidebar for instructions on checking helmet fit.



While riding your bike

- **Look and listen for traffic.** Also, look for things that could make you fall, like potholes and storm grates. Never use a cell phone or wear headphones.
- **Watch for vehicles going in and out of driveways.**
- **Keep both hands on the handlebars, except when signaling.** Carry books and other items in a backpack or bag designed to fit on a bicycle.
- **Stop before crossing the street, entering a road, or turning.** Look left, right, left, and behind you for traffic, including pedestrians, bicycles, and cars.

If you are allowed to ride in the street,

- **Ride single file and in the same direction as cars.**
- **Ride to the right side of the road,** but far enough from parked cars to avoid any car doors that suddenly open.
- **Obey traffic laws.** Follow all traffic signs, signals, and lane markings.
- **Be predictable.** Ride in a straight line, not in and out of cars. Use hand signals.

Take the helmet fit test

Put your helmet flat on your head. If it moves when you shake your head, you need to tighten your helmet or get a smaller one. Check:



Eyes: The helmet should sit low on your forehead – two finger widths above your eyebrows.



Ears: With the helmet buckled, the straps should meet just below the ears.



Mouth: When buckled, you should be able to fit no more than two fingers between the buckle and chin.

These tips include concepts from the National Highway Traffic Safety Administration, Safe Kids Worldwide and Bicycle Coalition of Maine.

Appendix F: Bicycle Rodeo Station Guide

BIKE RODEO STATION GUIDE



Proud Program Sponsor



Bike rodeos are a great way for kids and their parents to learn about biking safety with practice. Kids bring their bikes and practice and develop skills that will help them to become better bicyclists and avoid typical crashes. Some rodeos are designed as large municipal events with skills activities, exhibits and games, while others are much smaller, requiring less space, fewer resources and a smaller number of volunteers.

Station 1: Helmet Check

Before a child participates in this event, you want to be sure he or she has a helmet that fits and meets the U.S. Consumer Product Safety Commission's standards (indicated by presence of a CPSC label). The coalition should determine in advance the policies for providing free or low-cost helmets and replacing helmets that are outgrown or damaged. No child should participate in this program without a helmet.

Once the child has a CPSC-approved helmet that is the proper size, teach the easy three-step Eyes-Ears-Mouth process to make sure the helmet fits and is worn correctly every time.

Eyes: Put the helmet on the child's head and have him/her look up. The child should see the bottom rim of the helmet. The rim should be two fingers above the child's eyebrows and level on her head.

Ears: Adjust the straps of the helmet so that they form a "V" right under each ear lobe. Make a "V" to measure with your index and middle fingers.

Mouth: Once the straps are adjusted in a "V," buckle them. They should be snug, but not too tight. Adjust until you can put one finger between the strap and the child's chin. Now, have the child open her mouth as wide as possible. She should feel the helmet hug her head and the strap should feel snug to her chin.



Station 2: Bike Fit

The next step is to adjust the bike to fit the child. Invite bicycle shop employees to help you.

For a bike, a child should be able to sit on the seat and touch both feet to the ground. As the child develops more confidence, the seat can be raised so that he or she can just touch the toes of both feet or only one foot to the ground.

Station 3: Wheel Shop

Teach children how to adjust their bicycles or scooters and to make simple repairs.

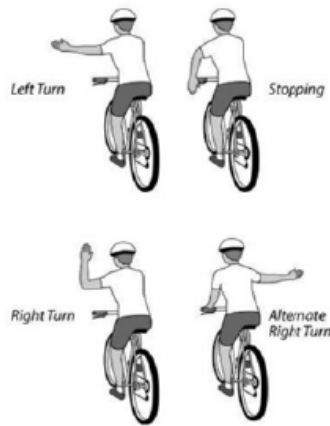
- Fill tires with air.
- Tighten all spokes and replace broken spokes.
- Adjust the handlebars and the seat.
- Replace flat tires.
- Replace worn brake pads.
- Tighten all screws, nuts and bolts on the bike frame.
- Check the chain to be sure it is secure.
- Secure and clean the reflectors, mirrors and lights.

Station 4: Following Rules

At this station, it is important to explain to kids how traffic works. Talk to them about what different road signs mean, showing examples of each sign (stop, yield, etc.). Teach them about yielding, passing, predicting traffic flow and the traffic laws that relate to cyclists. Bicycle riders have to obey the same rules as cars and buses. Be sure to mention the importance of riding with traffic.

Teach children the hand signals they should use to alert drivers to their actions:

- Left turn – extend your left arm out straight from your side.
- Right turn – extend your left arm out from your side, bent at a 90-degree angle at the elbow, hand pointing upward and the palm of your hand facing forward. Another option is to put your right arm out straight from your side.
- Stopping or slowing – extend your left arm out from your side, bent at a 90-degree angle at the elbow, hand pointing downward and the palm of your hand facing backward.



Once you tell children about all of these rules, quiz them orally. To further teach these lessons, set up a mini-road using masking tape, traffic cones or sidewalk chalk. Ask children to volunteer to serve as “signage” or obstacles, such as parked cars. Have each cyclist ride through the course as a volunteer calls out directions to him or her, such as “turn left,” “slow down,” “turn right.” The child cyclist should also remember to comply with the directions of all “signage.”

Station 5: Ride Right

At this station, children learn how to balance, start and stop, ride straight, ride slowly and scan and signal. Set up a mini-road and have each child practice these skills on the road.

1. Balance

- Have children practice riding in circles as well as a straight line.
- Show them how to use the brakes; get them to skid the rear wheels.
- Have them ride as slowly as possible without touching the ground.

2. Starting and stopping

- Children should learn to stop before entering a roadway.
- Teach them to look left, then right, then left again before proceeding.
- Remind them that driveways, sidewalks and crosswalks are potential danger zones.
- Practice starting and stopping over and over until it seems easy.

3. Riding straight

- Have children ride on a painted line in a parking lot.
- Teach them that straight-line riding will allow drivers to predict what they will do.
- Remind them that predictability is important in any traffic situation; kids don't know this.

4. Scanning and signaling

- Have children ride straight and look back at you without swerving.
- Teach them that they must scan for traffic in front of and behind them before signaling.
- Have them incorporate the signals they learned at Station 4.

Bike control skills may also include the following activities:

- Zig-zag – use sponges or traffic cones to set up a pattern that children must weave through
- Slow race – mark start and finish lines. You may need a stopwatch. Children are challenged to ride as slowly as possible from the start to the finish line without touching a foot to the ground. The slowest rider wins.
- Figure 8 – use sidewalk chalk or tape to outline a figure 8 that children must follow with their bikes. Make it large enough to allow children to safely make turns.
- Driveway ride-out – use cones to create a “driveway” with a fence or bush as a sight obstruction at the end. Create cardboard cars and ask for children to volunteer to “drive.” Instruct children on bicycles to enter the roadway from the driveway. Be sure they stop and look both ways, check again before going and take off smoothly, with good pedal position (front pedal higher than rear pedal).
- Scanning – teach children to look behind for traffic and be aware of their surroundings. Draw a straight line between two cones. Children on bicycles will ride straight along the line. Volunteers holding cardboard cars act as traffic. Cyclists should be able to look behind without veering left or right.

Station 6: Safe Places to Wheel

It is often hard for drivers to see bicyclists and skaters. “I didn’t see him.” That is one of the most frequent reasons a driver gives after crashing into a cyclist. That’s why children should know what they can do to see and be seen.

First, be sure parents and children know how to incorporate equipment for visibility.

- Incorporate retroreflective material on their clothing, accessories and shoes when riding
- Equip the wheeled vehicle with reflectors on the front, the rear, the wheels and the pedals
- Add a front light to a scooter or bike
- Do not ride when it’s dark

Teach children about different types of things they need to watch for as drivers of wheeled vehicles. Be sure they understand the following types of hazards:

- Moving hazards – cars, pedestrians, dogs, other cyclists, trains, trucks, buses, motorcycles or anything else that could cross their paths.
- Stationary hazards – parked cars, utility poles, park benches, fire hydrants, fences, parked bicycles or anything else that would be in the way.
- Surface hazards – potholes, sand, rocks, drain grates, concrete joints, raised manhole covers, broken glass, cans, other roadway litter and anything else that could cause a fall or loss of control.
- Visual hazards – bushes and shrubs, fences, parked cars, buildings, large or flashing signs and other things that either block the view or distract attention.

Set up a course that is often referred to as the “Rock Dodge.” Use chalk or masking tape to create a narrow lane for bicyclists to remain in. Then, use soft sponges to serve as “obstacles” for children to avoid. Tell the riders to travel straight toward the “obstacles” and steer around them at the last minute. They must remain in the narrow space (3 to 6 feet for kids 10 or older and 6 to 12 feet for kids under 10). The children must steer by turning their handlebars one way (to avoid the object), turning back the other way (to keep from falling) and then turning straight ahead (to continue).