



Lesson developed by North Carolina Dept of Transportation and adapted for use in CA by the Sonoma County Bicycle Coalition Safe Routes to School program



Time: 30-45 minutes

Bike Control

Studies have demonstrated that skill-building activities are the most effective way to promote student retention of bicycling safety skills. Lesson objectives set the stage for building safety skills, which are emphasized through students' participation in class activities. This curriculum does not cover every possible scenario that a child may encounter as a bicyclist but instead addresses the basic skills needed to be a safe bicyclist. Teachers should use their discretion to break up material to accommodate their daily schedules. The following Skill-Building Activities are an essential component of this curriculum, and all lessons should be complemented with the reinforcement of safe bicycling behavior. More time can be spent on practicing skills if children are already familiar with the core material.

Lesson Objectives

The objective of this lesson is teaching children to handle their bicycles safely and competently as they interact with other road users.

The children will be able to:

- Ride in a straight line without wobbling.
- Scan back over either shoulder at least twice in 50 feet, and identify a raised or lowered arm without swerving outside a two-foot wide lane.
- Scan ahead and behind while cooperating with other road users.
- Ride in a controlled and cooperative manner.

Why This Lesson is Important

It's important to teach young bicyclists how to handle their bikes with confidence and skill and to do so in a cooperative manner. This lesson introduces the concept of traffic communication. Telling others what we want to do and looking for a response is basic to sharing the roads safely. Young bicyclists need to learn this concept early.

Applicable Standards of Learning

The Essential and Guidance Standards listed below were prepared for the state of North Carolina. Correlations to California State Content Standards are not available at this time, with the exception of Common Core as listed below.



Essential Standards

4.PCH.4.2: Identify personal protection equipment needed for sports or recreational activities. PE.4.MS.1.2: Create movement skill sequences commonly associated with various sports and activities. PE.4.PR.4.2: Use cooperation and communication skills to achieve common goals.	P.E.5.MS.1.2: Use increasingly complex skills with power and accuracy. PE.5.HF.3.2: Implement strategies to achieve health-related physical fitness. PE.5.PR.4.2: Use cooperation and communication skills to achieve common goals.
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Common Core

CCSS.ELA-Literacy.W.4.7: Conduct short research projects that build knowledge through investigation of different aspects of a topic. CCSS.ELA-Literacy.SL.4.5: Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.	CCSS.ELA-Literacy.W.5.7: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. CCSS.ELA-Literacy.SL.5.4: Include multimedia components and visual displays in presentations when appropriate to enhance the development of main ideas or themes. CCSS.Math.Content.5.MD.A.1: Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real world problems.
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Guidance

RED.C.2.1: Identify situations from your daily life in terms of problems and solution strategies. EEE.SE.1.2: Illustrate personal responsibility in a variety of settings and situations. P.SE.1.2: Use self determination to build independence. I.SE.1.2: Integrate personal responsibility into the way you live your life on a daily basis.
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Materials

- Instructor bicycle
- One bike for each student
- Bicycle helmet for each student and instructor
- Extra helmet sizing pads of various thicknesses
- Surgical or painter's or cap for each student (wear under helmet to keep it clean)
- Small zip lock bag for each student, labeled with his/her name (to store caps between lessons)
- Bicycle tools: A variety of hex keys (also called Allen wrenches, typically metric) and adjustable crescent wrenches for seat and handlebar adjustments; pedal wrench to remove pedals.
- Bike pump(s)
- Bike Control Course Set Up Diagram
- Challenge Course Set Up Diagram
- 2 rolls of 2" masking tape
- 10' or 12' tape measure
- Whistle
- Props: 2-3 Hazards (Created with masking tape, rubber shower mats, or plastic discs to represent a hazard in the roadway without endangering the children)
- Parent/Caregiver Tip Sheet
- Child Assessment – Initial Skills Checklist (Class)

Preparation

Review the **Let's Go Biking! Teaching The Skill Building Activities** video which can be found in the *For Instructors* portion of the *Let's Go NC! Interface* website at <http://www.ncdot.gov/bikeped/safetyeducation/letsگونc/> .html

Check general condition of helmets and bikes. Ensure enough time to fit helmets. This will go more quickly with knowledgeable volunteers assigned to this specific task.

With chalk or masking tape, lay out the **Bike Control Course** and **Challenge Course** according to the diagrams found in the materials section.

NOTE: The course should be set up so that there is sufficient space for children to circle around the course on their bikes to go through the course again. Use a relatively flat and smooth surface.

NOTE: It may be most efficient to set up all skills courses, including those found in Lessons 4 and 5, at the same time.

Review and prepare the **Initial Skills Checklist**.

One assistant is needed for the **Scan over Shoulder** and **Challenge** activity. In addition, it's helpful to have volunteers on hand during class time to assist with preparing bicycles and helmets or conducting skill building activities. Fitting helmets can be time consuming. Coordinate with assistants in advance.

Optional Instruction Tool: You may choose to record the children performing skills using video. After the skills lesson, you can play the video and make suggestions on how children can improve their skill or technique.

Lesson 3 – Demonstration and Skill Building Activity



► Time: 30-45 minutes

1. Helmet Fitting
2. Bike Fitting
3. Ride in a Straight Line
4. Stop Quickly (Whistle Stop)
5. Use Hand Signals
6. Scan over Shoulder
7. Follow the Leader
8. Hazard Dodge
9. Challenge

Introduction

To start this lesson, children will demonstrate basic bike control: straight line riding, turning, stopping, and starting. This practice will let you assess the basic abilities of each child and help you determine if they have enough control to move on to more advanced skills. If children have difficulty with these basic skills, have an assistant work with them individually. After basic skills, they can move onto signaling, scanning, riding with others, and dodging hazards.

Children with disabilities may have compromised balance and still be able to ride a 3-wheeled bicycle (trike). See the *Instructor's Guide* for more detailed information on working with children of all abilities.

Assess skills using the Student Assessment – **Initial Skills Checklist for Grades 4-5 (Class)** during the lesson.

1. Helmet Fitting

Have children work in pairs to practice fitting helmets (their own helmet or helmets that are being provided as part of the course) and properly adjusting them in preparation for the on-bike lessons to follow. Assistants may be needed as most helmets will require some minor adjustment of the straps.

- Use the straps and sizing pads to get it to fit just right. The helmet should sit level on the head and cover the top of the forehead, so that you can put 2 fingers between your eyebrows and the helmet.
- Straps should be adjusted to fit snugly, but not tightly, forming a V under each ear. A helmet with loose straps can come off in a crash. With your helmet buckled, you should not be able to take it off, rock it from side to side or back and forth.
- Use the ***Fitting Your Bike Helmet Guide*** at the end of Lesson 1 for more pointers.

2. Bike Fitting

- Check to make sure the bike fits.
 - Diamond frame: stand over the frame with 1 to 3 inches of clearance.
 - Step-through frame: seat can be adjusted low enough to fit.
- Adjust the seat height to assure a safe and comfortable ride.
 - Beginners: When you sit on the seat, you should be able to touch both feet on the ground.
 - Advanced riders: When you sit on the seat with your foot on the pedal in its lowest position, your leg should be slightly bent.

3. Ride in a Straight Line

It's important for cyclists to be predictable to others when they are riding. Riding in a straight line can help cyclists avoid other vehicles and be predictable. Get them started by having them practice straight line riding on the **Bike Control Course**.

- Ask children why it is important to ride in a straight line in traffic (e.g. if you're swerving, other road users can't tell what you're going to do next).
- Explain that children will be riding on the right side of course, which represents a street. They should try to steer straight and stay within the lane.
- Have children ride as straight as they can. Instruct them to stay within the 1.5 foot lanes and not ride over them.
- Allow approximately two bike lengths between riders.
- Have all children go through the lane a few times, until they perform passably.

4. Whistle Stop

Explain the "whistle stop". This technique will be used at various intervals throughout the remainder of the lesson to control speed, regroup the class and to practice quick stops. Tell children they should stop as quickly and as safely as they can when they hear the whistle. Ask what could happen if they were riding fast in a group and stopped too quickly when they heard the whistle? (e.g. rear-end crashes, veering off course).

Give the following tips to the children so they can stop quickly and safely:

- *Allow at least one bike length between you and the person in front of you (the whistle could blow at any time).*
- *Brake smoothly without skidding or swerving when you hear the whistle.*

5. Practice Hand Signals

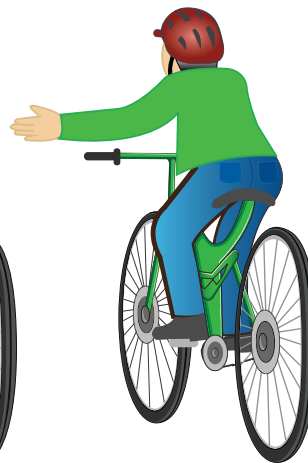
- Regroup class.
- Demonstrate hand signals for left, right, alternative right, and stop/slow with your back to the class.
 - When you use the left signal, scan to the rear for traffic when giving the signal.
- Ask each student to practice the left, right, and stop signals with their left hand while straddling their bikes and holding the handlebars with their left hands. Also ask each students to practice the alternative right hand signal with their right hand while straddling their bikes and holding their handlebars with their right hands.



Right Turn



Slow or Stop



Left Turn



**Alternative
Right Turn**

6. Scan over Shoulder

Explain that children need be able to ride in a straight line on the street while checking over their left shoulders for other vehicles, especially before changing position on the road or making a left turn. Have children ride the **Bike Control Course** to practice controlling the bike while scanning behind them. An assistant will stand to the left of the course behind the student with one arm either up or down as each child goes through the course.

- Have children ride the lane one at a time, with 3-4 bike lengths in between each student.
- As each student passes an assistant standing to the left of the lane, the student should look over the left shoulder to see the assistant. The student has to look back and call out, "Arm Up!" or "Arm Down!" while riding in a straight line.
- When the rider nears the end of the course he/she gives the slowing/stopping signal and stops at the end. Instruct children to give a left turn signal then turn left to circle back to the beginning.

7. Follow the Leader

Instruct children to practice the following skills, which teach them to ride cooperatively with others on the **Bike Control Course**. Instruct them to be aware of what is happening around them and to keep a safe distance between each other.

- Line the children up at the start of right lane in groups of five.
- Instruct the first student to ride toward the end of the lane and signal either a right or left turn about 10 feet before the end.
- The other children should follow the leader by giving the same turn signal and making the turn. Send the first group off, and then prepare the next group.
- Repeat twice, with new leaders each time.

8. Hazard Dodge

In this exercise, children will react to simulated hazards on the **Bike Control Course**. They will practice checking over their shoulders to make sure it is clear to change lanes. Place 2 or 3 "hazards" in the right lane of the course, spaced out so that children have time to move back into the right lane before encountering the second hazard. TIP: place the hazard so there is no room to pass it on the right.

- Ask children why bicyclists should avoid road surface hazards (e.g., you could fall; you could get a flat tire).
- Instruct children to should look back over their left shoulder before moving left to avoid the hazard. After passing the hazard, they should return to the right side of the lane.
- Have children to ride the course without hitting any hazards with their front wheels or swerving outside the lines, allowing five seconds between children.
- Allow each student to go through twice.

9. Challenge

Once children demonstrate mastery of the previous skills, they can try demonstrating proficiency in combining the previous skills on the **Challenge Course** layout, remembering to ride in a straight line while looking back or signaling.

- Each student will enter the Challenge Course, allowing 3 bike lengths in between each cyclist, look over left shoulder to see whether Instructor (or assistant) has an arm raised or lowered, calling out, "Arm Up!" or "Arm Down!"
- Each student then signals a right turn and turns right to follow the course.
- The student then signals a left turn and turns left to follow the course.

- At the end of the course, the student gives the slowing down or stopping signal and comes to a complete stop.
- Each student then circles back to the beginning of the course.
- Allow the children to continue riding the course as long as time permits.

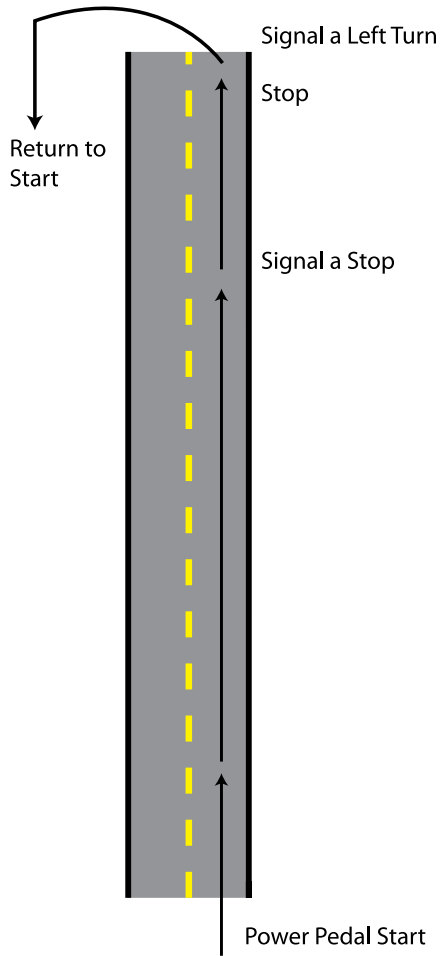
Review (optional)

To reinforce safety concepts, the instructor should review these topics:

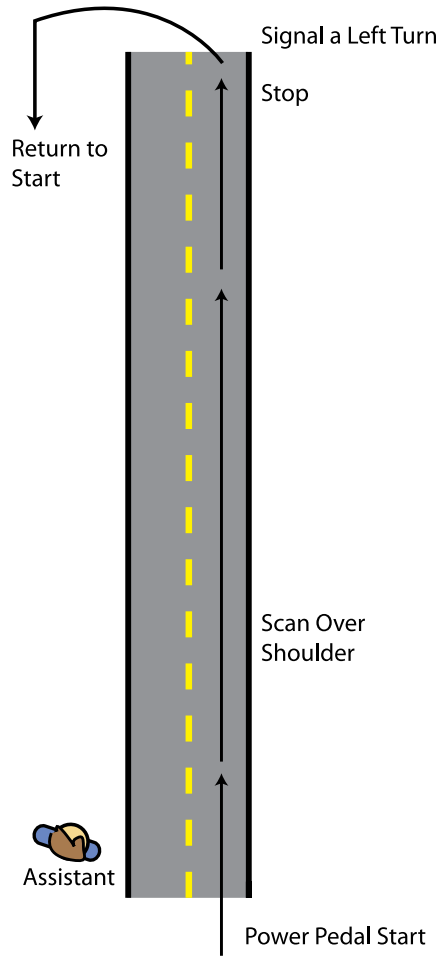
- How to scan behind for traffic before changing lanes or turning left,
- Hand signals by asking children to demonstrate,
- Why it's important to ride in a straight line,
- What hazards cyclists should be alert for, and
- What cyclists should do when they spot a hazard.



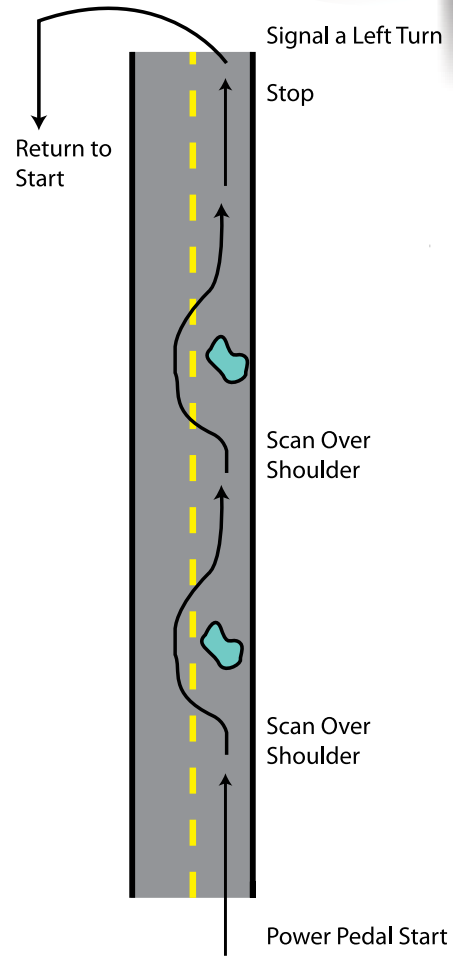
Bike Control Course Activities



1. Signal Turns

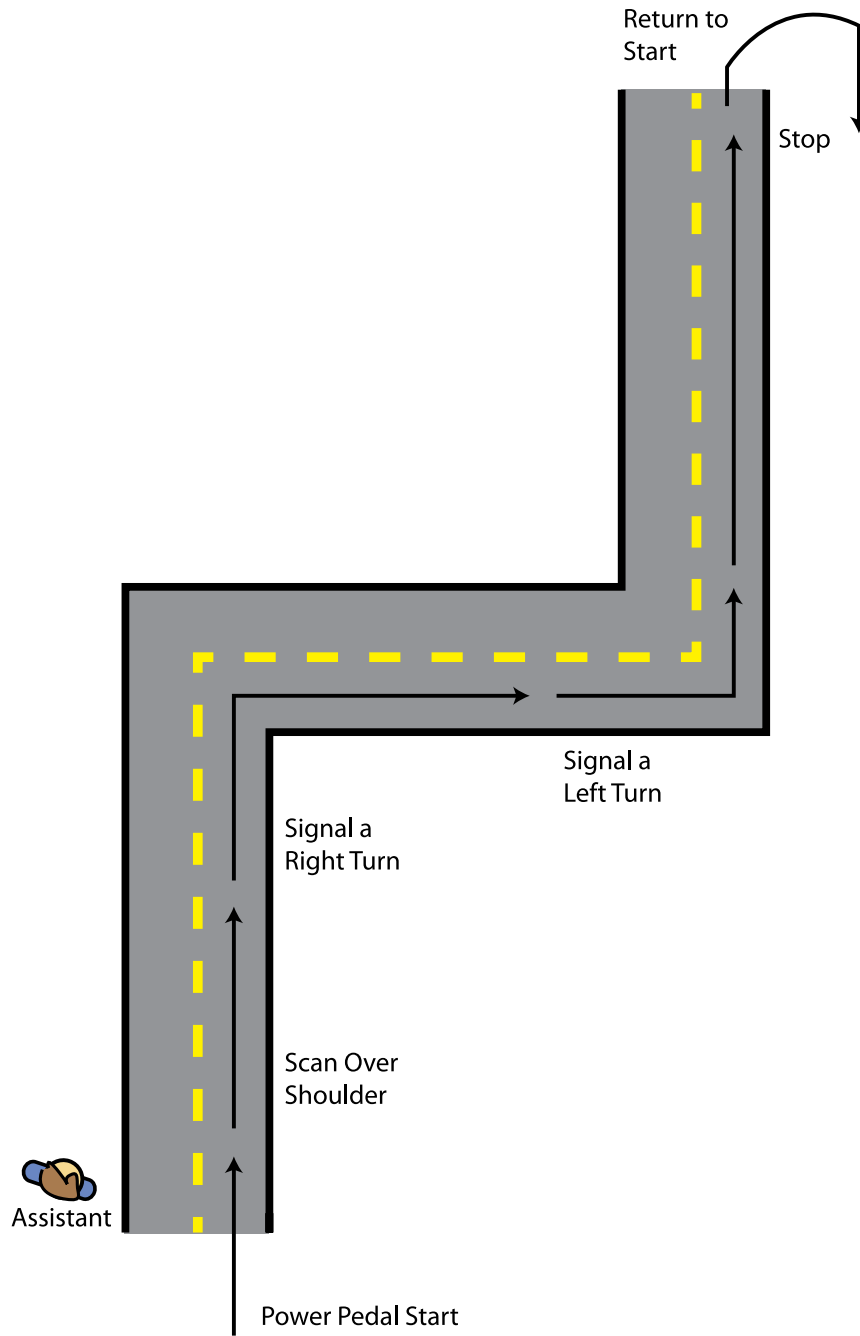


2. Scan Over Shoulder



8. Hazard Dodge

Challenge Course Activities



9. Challenge



Suggestions for a Balanced Curriculum

Grades
4-5
Lesson 3

Bike Control

These optional activities are included to extend the lesson into other areas of learning. Most activities presented may be completed within a 20-minute time period or may be assigned as homework opportunities.

English Language Arts

California is a popular place for bicycling. There are opportunities to ride all across the state enjoying many of the natural resources that California has to offer. Divide children into pairs and ask them to research a segment of bicycle tourism in California. Assign each pair of children a section of the state.

Examples from each section are given below but are not exhaustive:

- Northern – Bicycling the Pacific Coast from Eureka to San Francisco, Bicycling in and around San Francisco, Bicycling in and around Wine Country during fall harvest, Bicycling through the redwoods, Mountain Biking in Mount Tamalpais State Park.
- Central - Bicycling in and around San Luis Obispo, Bicycling through Big Sur on the coast, Bicycling through the farming region of the Santa Maria Valley, Mountain Biking in the forests around Santa Cruz.
- Southern - Bicycling the deserts of Southern California, Bicycling the coast from Santa Barbara to San Diego, Mountain biking at Big Bear Lake.

The California Department of Transportation has Regional and Local maps on their website which are a great starting point for information on routes: <http://www.dot.ca.gov/maps.html>. Some communities and regions have created Bicycle Plans which give a great amount of background information on bicycling in an area. Each student should create either a brochure or presentation that includes information and photos about bicycle tourism. The media that they choose to create should market the attraction to other children in the class.

Mathematics

With your class, calculate how long it would take someone to ride a bike across the state. A bicycle typically travels between 10-15 miles per hour. Athletes generally travel much faster, depending on their sport. For this exercise, use 12mph as the average speed that someone would use to travel by bicycle.

California has dozens of bicycle paths throughout the state. The Rails to Trails Conservatory maintains a list of all bike trails in California. Pick the longest trails and calculate how many miles you would travel if riding all of them. <http://www.traillink.com/stateactivity/ca-bike-trails.aspx> _____

If a bicyclist were able to keep pedaling for 24 hours, how far could he or she travel in a day? Convert 12 mph to _____ miles per day. (Hint: Use miles per 24 hours). Since this is unrealistic, how could we alter this figure? [288, Add in time to rest, eat, sleep]

If the bicyclist took 2 1-hour long rest periods and slept for 8 hours, how many miles could he or she travel in a day? _____ (Hint: Use miles per 14 hours). We will use this figure to represent how many miles per day an average person could travel on their trip across the state. [168 miles per day]

Using Google maps "bicycling" directions, calculate how many miles it is to ride by bicycle from San Francisco, CA to San Diego, CA. At this rate, how many days and hours will it take our bicyclist to ride from San Francisco to San Diego? [miles - days, approx hours]

Is this realistic? Why or why not? [Answers could include more time needed for breaks, more time for sight-seeing, slower speed to pedal in mountains, factor in time to eat meals, etc.]

Optional

Add more word problems to develop children's understanding of time and distance in their own community, i.e., how long would it take to bicycle from the school to downtown?

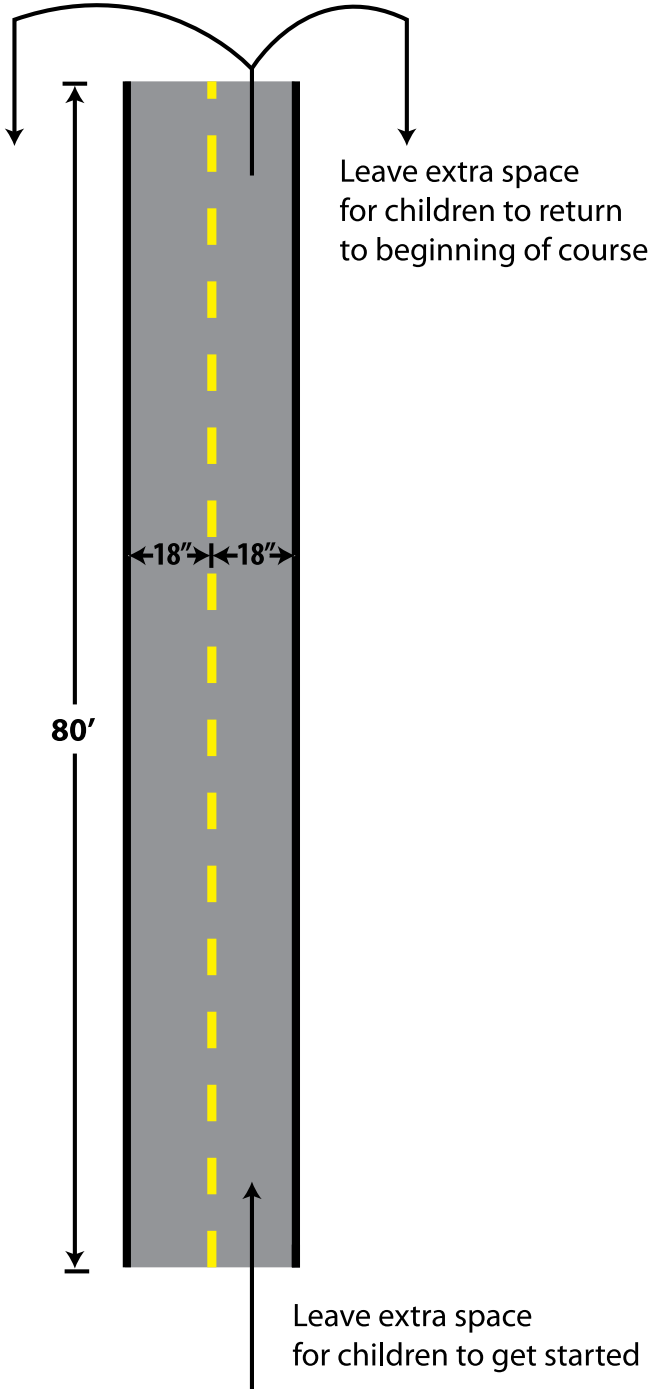


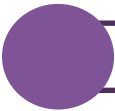


Set Up Diagram

Bike Control Course

Use this diagram to set up your skills course for Lesson 3. If space and staffing permit, you can lay out a second course beside the first one so more children can participate at one time.

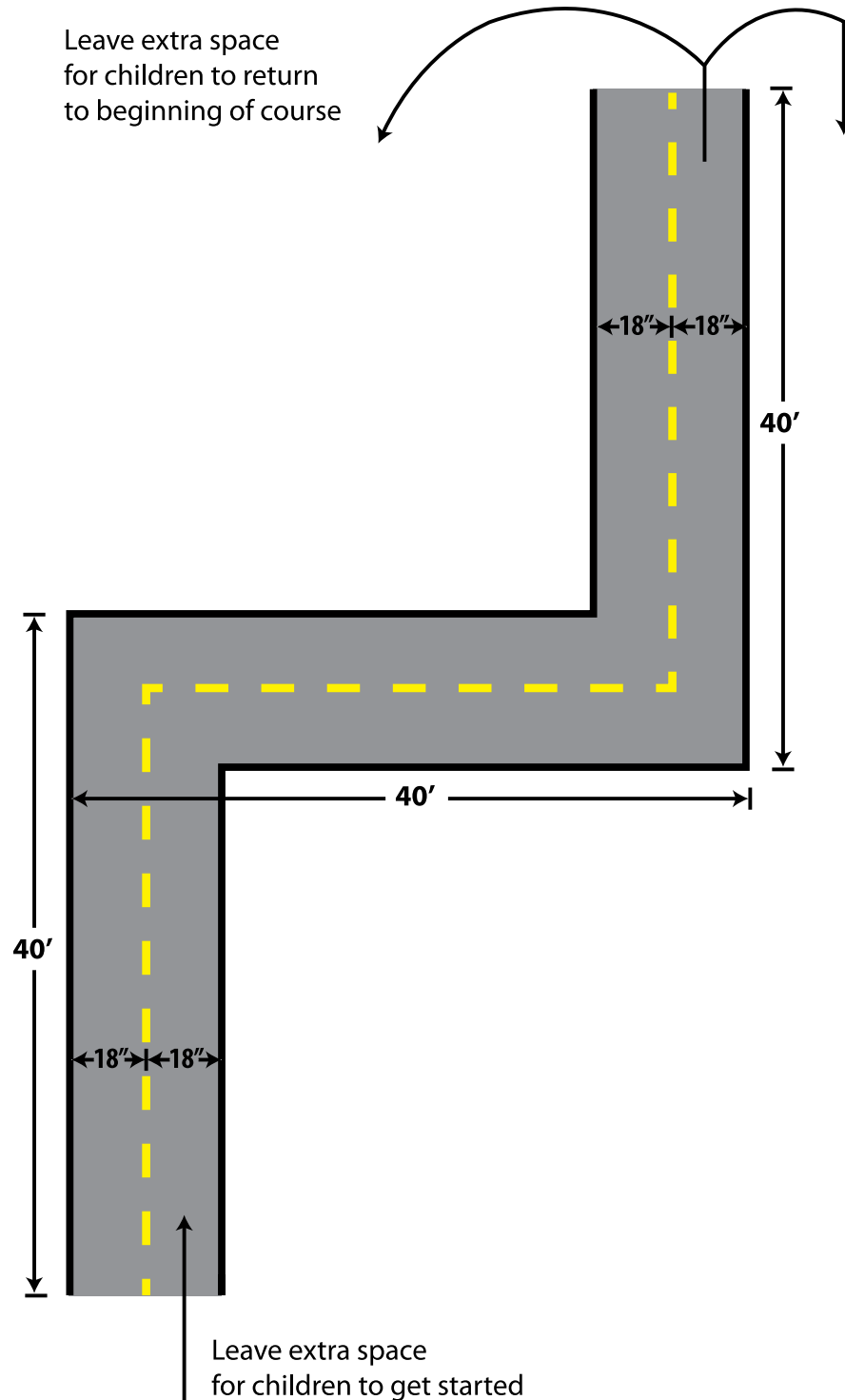




Set Up Diagram

Challenge Course

Use this diagram to set up your skills course for Lesson 3.





Parent/Caregiver Tip Sheet

Today your child practiced basic bike control: straight line riding, turning, stopping, and starting. If your child mastered these basic skills, he/she moved onto more advanced skills such as signaling to communicate with others, scanning behind, riding cooperatively with others, and moving safely around simulated hazards. It is important for your child to continue practicing these skills to become more proficient.

PRACTICE AT HOME!

You can help your child by setting up a skills practice area in an area away from traffic, such as a private driveway, public park, or vacant parking lot. Using chalk, tape or empty cans/plastic bottles, set up a lane that is 1.5 feet wide and about 30 feet long.

Be sure your child is wearing a properly fitted helmet for these exercises, even if they take place in your driveway or a park.

Have your child practice these bike control skills while staying within the lane:



- Ride in a straight line without wobbling or hitting the edge. Keep both hands on the handlebar.
- While riding in a straight line, signal a left turn with the left hand while controlling the bike with the right hand. When your child can do the signal without wobbling, have them scan behind their left shoulder before signaling, and have them turn left at the end of the course.
- While riding in a straight line, signal a right turn with the left hand while controlling the bike with the right hand, or signal a right turn with the right arm out while controlling the bike with the left hand. When your child can do the signal without wobbling, have them turn right at the end of the course.
- While riding in a straight line, signal to slow/stop the left hand while controlling the bike with the right hand. When your child can do the signal without wobbling, have them come to a complete stop after signaling at the end of the course.
- Stand to the left side of the lane so your child has to look back while continuing to ride in a straight line. You should either raise your arm, or have it by your side when the child looks back. The child has to tell you whether your arm was up or down. As the child develops this skill, you can make it more challenging by holding up a few fingers, and the child has to tell you how many fingers.
- Demonstrate how to stop quickly and safely. As the child is riding in the straight line, call out STOP. The child has to stop as quickly as possible without losing control of the bike. (Please note: if your child's bike has hand brakes, make sure the child understands to press both brakes equally so the bike does not flip.)