Colorado Safe Routes to School

Futures in motion

Bicycle Safety Lesson Plans

Third through Sixth Grade

COLORADO
Department of Transportation

Colorado Safe Routes to School
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Introduction

In 1969, half of all children either walked or biked to school. Today that number has declined to 15%. More than 50% of students arrive at school via private automobiles which are responsible for between 20-30% of morning traffic. As this trend developed, the number of overweight children increased by 65%.

According to Children's Mercy Kansas City, "The 2024 U.S. Report Card on Physical Activity for Children and Youth reveals a continued low level of physical activity, with an overall grade of D- for children and youth. The 2024 United States Report Card on Physical Activity is the latest assessment of physical activity levels among children and youth in the U.S. It highlights significant concerns regarding the physical activity habits of young people, showing that only 20% to 28% of children aged 6 to 17 meet the recommended 60 minutes of daily physical activity." Most children living within a 1/2 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.

According to the Journal of Orthopedic Research (2022), 4,666,491 bicycle-related injuries occurred between 2012 to 2021. The rate of bicycle incidents was often higher in the summer (36%) and on weekends (31.9%). Most injuries affected younger and male individuals. Head injuries were the most frequent type of injury.

According to Safe Kids Worldwide, there were 102 fatal bicycling injuries involving children in 2020. Of those deaths, 75 percent were traffic-related, and 25 percent were non-traffic related. Between 2006 and 2020, there were a total of 1,753 fatal bicycling injuries among children. Although the rate of fatal bicycling injuries decreased by 35 percent between 2006 and 2010, it has remained relatively unchanged since then.

In response to these challenges and in an effort to encourage healthy living and improve safety, the Colorado Department of Transportation (CDOT) has developed a bicycle safety curriculum in support of the Colorado Safe Routes to School (CSRTS) program. Safe Routes to School initiatives have long been a focus of health and physical education in schools. These lesson plans, which help educators teach children about safe walking and bicycling, introduce a variety of skills that can help children stay safe while they walk or ride their bicycles and have been developed to improve the safety of students on their way to school and in their communities.

Goal of the Project

The primary goal of this project is to promote pedestrian and bicycle safety for elementary school children by teaching them skills that will help them safely cross the street.

How to Use These Lesson Plans

This curriculum is a combination of indoor and outdoor lessons that can be used together or separately, depending on time and space available. Each lesson builds on the concepts and skills of the previous one. The outdoor lessons are the practical application of the skills learned in the indoor lessons. In addition to this Bicycle Safety Unit, please also see Colorado Safe Routes to School companion educational materials: Pedestrian Safety Lesson Plans intended for kindergarten through second grade and Core Subject Lesson Plans designed for kindergarten through eighth grade.

A Note About E-Bikes

E-bikes come with unique safety concerns. Phyllis Agran, MD, FAAP, wrote that “There is a higher risk of severe injury and death for riders of e-bikes than for regular bike users. E-bikes were reported as the reason for about 53,000 emergency department visits and caused 104 deaths from 2017-2022. In 2022 alone, e bikes were linked to 24,400 emergency department visits.”

Greatest risk is associated not with lower speed e-bikes but with “e-motos” which can reach top speeds of 35 mph or faster. Colorado law restricts the operations of Class 3 e-bikes, which reach a top speed of 28 mph with pedal assist, to operaters age 16 or older. Anyone under 18 years must wear a helmet. Colorado has further enacted an e-bike law requiring safety certification of lithium-ion batteries, which can explode when manufactured or used improperly.

At the time of this publication, e-bikes are an emerging topic, and resources for students are not readily available. We encourage educators to cover e-bikes in their lesson plans where they see fit. Visit CDOT’s E-Bike Safety Campaign, Go Safe Go Far, page regularly for updated information and resources. Materials will also be added to the Colorado Safe Routes to School website as they become available. We encourage all teen riders to consider taking an E-bike Training for Teens course. Also visit Bicycle Colorado’s website for their schedule of E-Bike classes.

Bicycle-Friendly Driving Resource

In this unit, students develop essential skills for safe bicycling. However, road safety is a shared responsibility, and it's also crucial for future drivers to understand how to interact safely with bicyclists and pedestrians. By the end of this unit, students will have a strong foundation in bicycle safety, and a better understanding of how drivers can contribute to a safer road environment for everyone. We encourage educators to share Bicycle Colorado's Shift Driving online course with families and communities as a resource to help fill knowledge gaps in traditional driver education. This free, web-based course is designed to teach drivers about sharing the road safely with vulnerable road users, emphasizing topics such as Colorado's specific laws regarding bicyclists and pedestrians, common crash scenarios to avoid, and

navigating different types of bicycle infrastructure.

Relationship to Colorado Academic Standards

These lessons are age appropriate and can be employed in third through eighth grade classrooms.

Third grade lessons satisfy the following academic standard for third grade Comprehensive Health content area:
4-3. Identify ways to prevent injuries at home, in school, and in the community.

Fourth grade lessons satisfy the following standard for Physical Education:
4-1: Display safe and responsible behavior while engaging in fitness activities.

Fifth grade lessons satisfy the following standard for Comprehensive Health:
4.3d: Demonstrate ways to promote safety and prevent unintentional injuries.

Sixth grade lessons satisfy the following academic standard for sixth grade Comprehensive Health content area:
4-4: Demonstrate ways to promote safety and prevent unintentional injuries.

Specific lessons may be appropriate to other age groups and can be adapted to satisfy other standards.

Acknowledgements

These lesson plans represent an updated version of a project originally funded by the Colorado Department of Transportation and through a Safe Routes to School Grant. This project could only have been possible with the input and feedback received from over 24 individuals from school districts and organizations throughout Colorado as part of that initial development. Their dedicated efforts are greatly appreciated. Projects are underway all over the state to incorporate Safe Routes to School initiatives and the interest and efforts made by all those invested in Colorado Safe Routes to School make a huge difference in the quality of life of our schoolchildren.

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Note: This curriculum is intended to promote safety and awareness for all students and may be modified for individual communities. Acknowledgement to CDOT's Colorado Safe Routes to School program is appreciated.

Lesson 1: Bicycle Helmet Fitting

Grades: 3, 4, 5

Objective

To help students understand the importance of wearing a bicycle helmet and how to properly fit one.

Background

Head injuries in bicycle accidents are a great concern. According to the U.S. Federal Highway Administration and the National Safety Council, between 70% to 80% of all fatal bicycle accidents involve head injuries. Almost one third of non-fatal incidents also result in some form of head injury. Head injuries are involved in more than half of all fatalities as well as long-term disabilities.

A properly worn and certified bicycle helmet cushions and protects the head from injurious impacts with hard surfaces such as asphalt and concrete. Scientists measure the intensity of impact, or how hard something hits, by measuring g-force (g). The higher the measured g-force the higher the potential for physical damage.

According to the research, 70-120 g's can result in concussive injury in adults. However, this value is lower for children and adolescents at 32-92 g's. Though research does not point to a definitive value, it is generally accepted that brain damage and possibly death can occur with impact forces greater than 80-100 g.

Key Messages

- Wearing a properly fitted bicycle helmet can reduce your risk of serious injury from a crash or fall.

- It is essential to wear your helmet EVERY time you ride your bike.

- Adjust your helmet so it fits correctly over the forehead, with chin strap buckled.

Vocabulary

Brain injury, paralysis, motor skills, coordination, balance

Preparation

Lesson time

30 minutes

Materials

- Helmets, one for each student

Setup

Obtain helmets to hand out to each student. This lesson can also be done with a few helmets handed out to students working in groups. Prepare a note or email to parents sharing the details of the lesson and including the Helmet Fitting Guide links listed under the Take Home section.

Procedures and Activities

Introductory Discussion

Introduce the lesson and stress the importance of properly fitted helmets. Ask your students the following questions:

What organ allows you to think, learn and remember things? Answer: Your brain.

What are some things your brain controls?
Answers: Higher functions like thinking memory and emotion but also basic physical functions like breathing, heartbeat, balance, and sensation.

What happens if you hit your head during a bicycle crash? Answer: Your brain may be hurt.

Is your skull enough to protect your brain from the impacts that can occur in a bicycle crash?
Answer: No

What is the purpose of a well-fitting bicycle helmet?
Answer: A bicycle helmet is specifically designed to protect your brain from impact injuries.

Why may a poorly adjusted helmet not protect your head as well?
Answers:
Because it might slip around your head, might leave some parts exposed, might fall off during a crash.
A poorly adjusted helmet usually will not protect the wearer as well as a well fitted helmet.

Demonstrate fitting procedure on a student volunteer.

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

Activity: Helmet Fitting

1. Have students position the helmet so it is level and covers the forehead.
2. Tighten the back of the helmet (if there is an adjustment).
3. Tighten chin strap and adjust side buckles.
4. Have students pair off and check each other.
5. Refer to the "Helmet Fit Guide" to ensure that:
    - The helmet sits low and level on the forehead- one or two finger- widths above your eyebrow.
    - Helmet is level over the ears and straps make a V under each ear
    - Chin strap is tightened until it's snug, with no more than one or two fingers fitting under the strap.

Review key messages.

Optional Extension Activity: Triangle Tag

Purpose

To teach students how a secure helmet should look and feel in motion. To ensure proper fit, try moving the helmet from side to side and from front to back, after it has been fitted. Triangle tag is a fun activity to check for loose fitting helmets.

1. After all students have a properly fit helmet, divide them up into groups of four.

2. One person from each group is designated as the "tagger" and another person is designated as the person to be "tagged."

3. The person to be "tagged" and the other two students hold hands and stand in a triangle formation. The person designated as the "tagger" stands outside of this group.

4. The group moves in a side-to-side movement as the "tagger" attempts to tag the student designated to be "tagged."

5. The "tagger" cannot go under or over the group.

As the students move around, those helmets that are secure and those that are not will become evident.

Take Home

Prepare an email or note to parents sharing information about the lesson and how it focused on the importance of properly fitted helmets when riding a bike. Include the links below from the National High Traffic Safety Administration (NHTSA).

Fitting Your Bike Helmet

Easy Steps to Properly Fit a Bicycle Helmet

Note: The guide above is not available online in Spanish and may not be accessible. Those in need of modifications should reach out to NHTSA.

Lesson 2: Basic Bike Fit

Grades: 3, 4, 5

Objective

To help the students understand the importance of bicycle fit and how to properly fit a bicycle.

Background

The first step to having a safe bike is to have one that fits the rider. A bike that fits properly helps cyclists stop, balance, and conserve energy. After finding a bike that fits, it's just as important to know that all the parts work. It is very important to do a bicycle safety inspection every time you ride your bicycle. This lesson works best if there are bicycles for each student. Fitting can be demonstrated on a student volunteer if there are limited bicycles available.

If you wish to discuss the fit of e-bikes, the following could be discussed:

1. Height and inside leg length: Match your height with the frame size.
2. Standover height: Make sure that this allows for stability
3. Seat height
4. Look for a manufacturer's size chart
5. Measure your inseam, standover height, and leg length to ensure a proper fit.

Note: There may be liability issues with this lesson. Check with a supervisor prior to teaching.

Key Message

The seat should be at the proper height for safe riding.

Preparation

Lesson time

15 - 30 minutes, depending on how the lesson is run

Materials

- Bicycles and helmets for each student plus the instructor; or, if this is a demonstration for a group, 1 bicycle and helmet for the instructor
- 1 Allen Y-wrench
- 12, 13, 14, and 15 mm box wrenches

Setup

- Have bikes out and organized by size.
- Teach with ABC Quick Check:

  A: Check the air pressure
  B: Brakes
  C: Cranks, Chain, and Cogs

  See the ABC Quick Check from National Highway Traffic Safety Administration (NHSTA) for more details.

Procedures and Activities

Introduction

Introduce the topic and express its importance.

Bikes are like shoes and need to fit the user to be comfortable.
Small adjustments to a bicycle can dramatically improve riding comfort.

Ask the students:
Why should your bicycle be properly fitted for you?
Answer: To ensure maximum enjoyment and avoid long-term injury and discomfort.

How does seat height affect your riding?
Answer: Appropriate seat height maximizes comfort and efficiency.

What are 2 important aspects to fitting your bicycle?
Answer: There are many subtleties to bike fit, but the most important things are a frame you can stand over and a seat height that allows almost full extension of the leg while pedaling.

Demonstration and Interactive Exploration: Bike Fit Basics

Explain that the goal is to find a bike that will fit the individual. If the class meets multiple times, let students know they should continue to use the same one that has been adjusted to their size during the class.

Get each student a bike they can stand over with 1"- 2" of clearance over the wheel .

Have students work in groups of 2 or 3.

Demonstrate how to use quick release seat binders.

Have students mount bikes with one hand on a wall or table for stability.

Ask students to put the ball of their foot squarely on the pedal.

Pedal backwards until one foot is in lowest position, pedal down.

Have partners check to see if there is a slight bend in the knee.

Make adjustments and check again.

Repeat for each student.

Briefly discuss gears and demonstrate how to shift:

- The proper gear combination is important for efficient pedaling:
  - Higher gears increase the force required to pedal (downhill).
  - Lower gears decrease the force required to pedal (uphill).
  - The right hand controls the back gears.

Closure

Review key messages.

Lesson 3: ABC Quick Check

Grades: 3, 4, 5

Objective

To help students understand the steps to do a safety check on their bicycle each time they ride.

Background

It's very important to do a safety check each time you ride your bike so you don't get stranded or injured while out riding. Any part that is broken may compromise your safety.

Key Messages

- A properly functioning bike is safer and more fun to ride.
- Perform the ABC Quick Check before every ride.
- Knowing how some of the essential bike parts work will make diagnosing problems easier.

Vocabulary

chain, cranks, cassette

Preparation

Lesson time

10 minutes

Setup and materials

- Bicycles, enough to demonstrate and allow students to work in pairs

  Note, this lesson can be taught with Lesson 2: Bike Fit.

Procedures and Activities

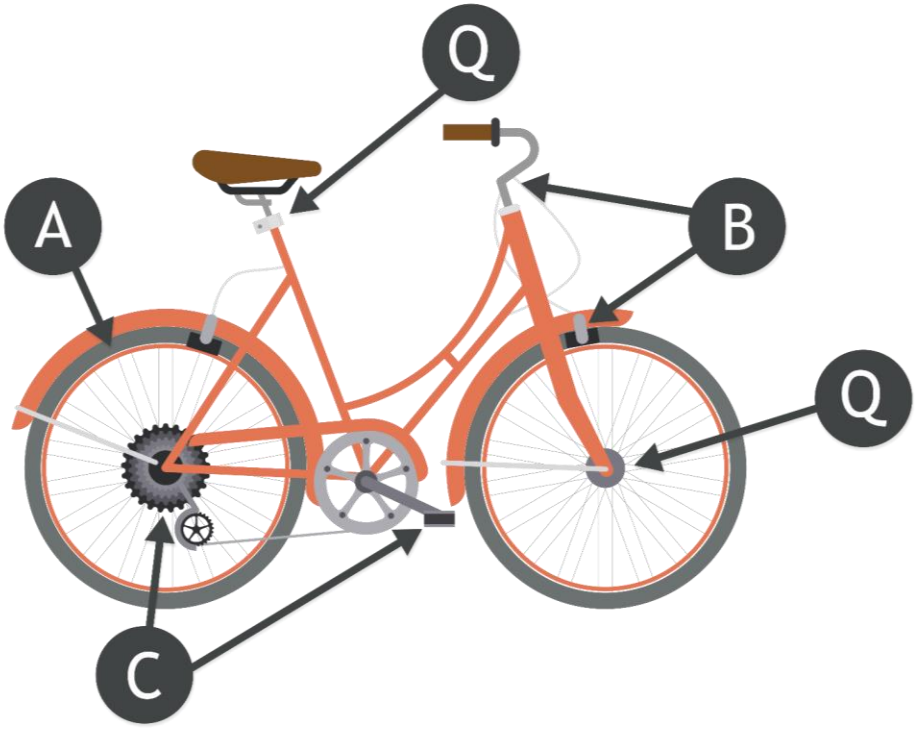
Activity: Introduction

Explain that before you get on your bike to ride you should perform this quick check. 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.

Explain each part of the ABC Quick Check and what each bike part does.

- A - Air

- B - Brakes
- C - Chain, Cranks, Cassette
- Quick - Quick Release



ABC Quick Check

See the ABC Quick Check from National Highway Traffic Safety Administration (NHSTA) for more details.

Activity: Practical experience

Using the ABC Quick check guide have students check the following:

Air

- Have students squeeze tires to make sure they are firm.
- Pump up tires if air pressure is low.

Brakes

- (If handbrake) Squeeze the brakes and make sure that the bike won't roll and that 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.

Chain

- Lift the back end of the bike and pedal forwards for a few pedal strokes.
- Check that the chain runs smoothly through both derailleurs.
- If the chain is rusty, dry or off the chainrings, lube or re-position it.

Quick

- Manually inspect quick release levers to be sure that they are tight.
- Also make sure that the wheels are straight in the frame.

Check

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

Closure

Review key messages.

Remember:

A is for Air

Air is leaving your tires all the time! So, pinch the tires to make sure they have plenty of air. If they appear low, pump them up to the recommended pressure on the side of the tire (or until they are firm.)

B is for Brakes

You may be able to ride, but can you stop? Push your bike to test your brakes. Does it stop quickly? (Your brakes may be foot brakes or handbrakes.) Remember when braking with handbrakes, squeeze both equally and never only the front brakes (which can cause you to go over the handlebars).

C is for Cranks, Chain and Cassettes

They're what make your wheels turn when you pedal. Lift the back of your bike and turn your pedals forward. The wheels should turn smoothly and there shouldn't be any odd noises. The chain should not be loose or rusty. Get chain lube from a store if needed.

Quick Check

Check the quick releases on the seat post and wheels to make sure they're secure. Then do an overall "quick check" to make sure the bike is ready to ride. Once you're done with the ABC's look over the rest of your bike and make sure everything looks secure and tight.

E-bike extension: Discuss additional considerations for e-bikes. Encourage students to get comfortable with their e-bike's speed controller and brakes in a quiet, secluded environment before traveling. Practice safe e-biking in different settings, especially around other path users. Note that safety and maintenance checks should be done regularly with e-bikes as with all bikes. For helpful information and resources, visit CDOT's E-Bike Safety Campaign, Go Safe Go Far, page.

Lesson 4: Starting and Stopping Part 1

Grades: 3, 4, 5

Objective

The intent of this lesson is to teach children the technique of stopping.

Background

Stopping at the edge of a driveway, at stop signs, and intersections with traffic signs are the first skills of learning to be safe in traffic. A frequent cause of injury to young bicyclists (and pedestrians) is failure to stop, sometimes referred to as "driveway ride out." The skill of stopping with control of the bike and looking for "edges" where it is important to stop, begins with the pedestrian skills but continues into the bicycle unit.

Note: There may be liability issues with this lesson. Check with a supervisor prior to teaching.

Key Messages

- Always start in Power Pedal Position.
- Always use proper braking technique.
- Always step down from the saddle at a stop.

Vocabulary

pedal, edge, braking

Preparation

Lesson time

30 minutes

Materials

- Bicycles and helmets for each student
- Cones
- Chalk or rope
- Mock cars (or posters of cars)

Setup

Use the cones, chalk or rope, and mock cars to set up a ring or donut shape around which students can ride to practice learned skills.

Procedures and Activities

Activity: Introducing Stopping Skills

Introduce the concept and the importance of stopping.

- Proper starting/stopping technique can save your life.
- A rider must master starting/stopping before starting to ride on the road.

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Give instructions for the lesson.

Explain Starting Technique (Power Pedal Position):

1. Make sure each rider is off the seat and straddling the top tube.
2. Have students figure out which foot they want to start on (one foot is on the ground and the other will begin on a pedal).
3. Have students raise the pedal on the side of their starting foot up to the two o'clock position.
4. 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:

1. Stop by having pedals at 12 and 6 o'clock (pedals seen as hands on a clock).
2. Remove the foot that is on the 12 o'clock position while slowing to a stop.
3. Step onto ground and straddle the top tube.
4. Repeat.

Activity: Putting Learning into Practice

- Have students begin riding in the same direction around the doughnut. Make it a game by explaining instructions as noted below.
- Have all students stop by yelling "Red light!" or by blowing a whistle.
- Have students start again by yelling "Green light!" or by blowing the whistle again.
- Continue this practice and help students who are having trouble.

Closure

Review key messages and invite students to share any impressions of starting and stopping.

Important note: According to Saferoutestoschool.org,
“Heavy E-bikes traveling at high speeds are harder to maneuver and take longer to stop. The average speed of a standard bicyclist is 12 mph. Type 1 & 2 e-bikes can travel up to 20 mph (Type 3- 28 mph). This is a significant difference when considering the experience level of student E-bike riders.”

For helpful information and resources, visit CDOT’s E-Bike Safety Campaign, Go Safe Go Far, page.

Lesson 5: Starting and Stopping part 2

Grades: 3, 4, 5

Objective

The intent of this lesson is to teach children the skills of safely stopping: recognizing stop signals, looking left, right, left for traffic, and practicing the “power pedal” position (a down stroke of the pedal for a quick start).

Preparation

Lesson time

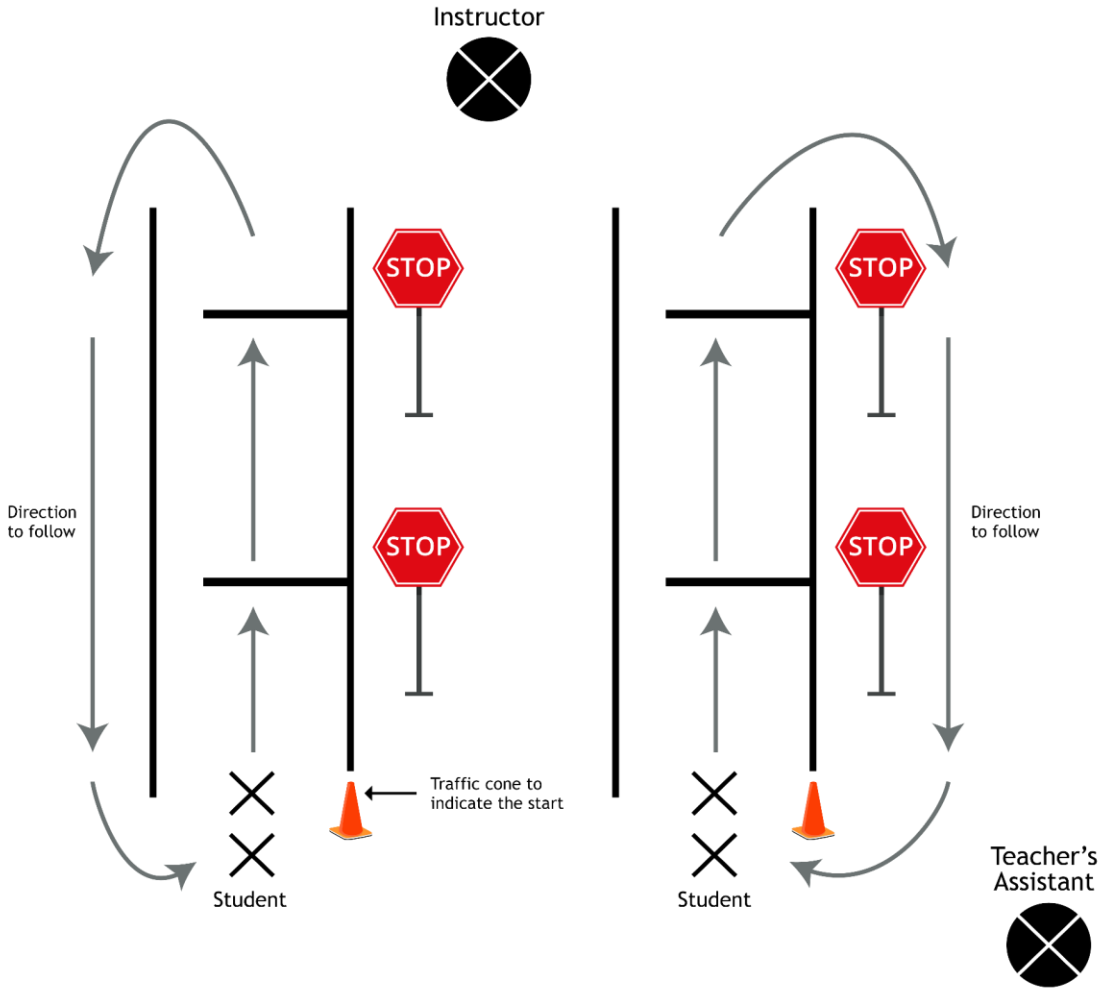
30 minutes

Materials

- Bicycles and helmets for each student
- Cones (5)
- Whistle
- Chalk or rope
- Mock cars or posters of cars

Setup

Use the illustration provided to help with this activity's setup.



Starting and Stopping Setup

Procedures and Activities

Activity: Introduction and review

Briefly review the basic concept and importance of stopping from the previous lesson. Head out to the practice area. Emphasize and demonstrate looking left, right, left for traffic after stopping before starting up again. Demonstrate the “power pedal” position, a down stroke of the pedal for a quick start.

Activity: Facilitated Practice

Divide the children into groups, and line them up single file behind five or six cones that face along lanes that are marked off with cones, ropes, or chalk. Call the first children 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).

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.

When clear, they may proceed to the next stop sign and repeat.

Have the next group of children begin as the first group is approaching the 2nd stop sign.

They should circle around the outside of their lane, to the end of the line.

Repeat until skills are mastered or time runs out.

Closure

Review key messages and invite students to share their impressions.

Lesson 6: Starting and Stopping part 3

Grades: 3, 4, 5

Objective

Children practice controlling their bicycles, stopping on command, and discovering the need for traffic rules.

Background

This activity allows the instructor to quickly assess the skills of all the students in a controlled environment. It places the children 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 twenty-five by twenty-five feet or a forty-foot diameter circle. The intent of this activity is that children move freely about without touching each other or leaving the established boundaries.

Preparation

Lesson time

30 minutes

Materials

- Bicycles and helmets for each student
- Cones (5)
- Whistle
- Chalk or rope
- Mock cars or posters of cars

Setup

Set up a 25ft x 25ft area or a 40ft diameter circle using cones or chalk to establish the boundaries. (The marked area can be larger depending on the number of children.)

Procedures and Activities

Activity: Introduction and Review

Have the children go through the ABC Quick Check taught in Lesson 3.

Bring the students to the center of the defined area, identify the boundaries, introduce your stop signal (whistle, voice, megaphone), and tell the children that in a minute they will begin moving

slowly in any direction within the boundaries, being careful NOT to touch or run into anyone or their bicycles.

*Note: When conducting this activity for the first time with 3rd graders, have them walk their bicycles first.

Have students line up on the outside corners or edges of the boundaries and allow them to enter the area 2 to 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 children that appear to demonstrate inability to follow your instructions and have them wait outside the boundaries to observe as traffic police. In addition to being a management tool, this time will also help them recognize why certain actions are hazardous to self and others.

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?

Finally, proceed to have children move within the boundaries, following “the rules” of traffic by circulating in a counterclockwise pattern (staying on the right) and stopping on command.

Closure and review

Review key messages and invite students to share any experiences or observations.

Lesson 7: Hazards

The focus activity of this lesson is slightly modified from
Minnesota WalkBikeFun-Curriculum 2022

Grades: 3, 4, 5

Objectives

To help students recognize hazards in the roadway.
To allow students to practice avoiding road hazards while maintaining control of their bicycles.

Background

This lesson will encourage children to think about different hazards and why hazard avoidance is important. Children should also become familiar with the different types of hazards: surface, moving and stationery. This is a good opportunity to discuss how these types of hazards are different, yet equally dangerous.

Key Messages

- Always be on the lookout for the common hazards of the road: stationery, surface and moving hazards can be equally dangerous
- Danger can come from unpredictable road conditions

Preparation

Lay out or mark two lanes for riding with a ”hazard” (beanbag, marker, or small object) placed in each lane.

Lesson time

30-60 minutes
This lesson may be broken into two days as time allows.

Materials

- If available, obtain photos of common road hazards that cyclists can avoid (slippery surfaces, rocks, sand, uneven pavement)
- Bicycle for each student

Procedures and Activities

Activate

Brainstorm with students possible hazards they might encounter while riding their bikes. As they generate ideas, discuss which type each hazard is: surface, moving or stationary. Hazards are

often unexpected and planning and practicing how to handle these situations will improve their safety when riding.

Activity Part 1

1. Instruct students that they will practice avoiding an unexpected road hazard while maintaining control and direction of their bike. The most important thing will be to continue riding in a straight line. The secondary objective is to avoid hitting the hazard with the front wheel.
2. Explain and then demonstrate the following technique: you are going to ride over the top of the hazard, but as you do, you will quickly turn and then counterturn the bike such that the wheels do not run over the hazard. You will approach the hazard straight-on, and just before your front wheel reaches the hazard, you will make a quick turning motion to the left, allowing your front wheel to bypass the hazard on the left side, followed by a counter-steer motion to the right. These actions should be carried out very quickly, allowing the rider to pass over an unexpected hazard, when steering around it isn't possible (usually when it wasn't noticed in time).
3. Students practice this skill until they demonstrate improvement. For many students, a single class time will not be adequate time to demonstrate mastery; encourage students that this is something they can/should continue to practice outside of class time, if possible.

Review key messages.

Activity Part 2

If doing part two on a separate day, invite students to recall the hazards identified in part one. Possibly engage in a game where you, or a chosen student, looks at a photo of a hazard presented in part one and describes it while other students try to recall or guess. Follow up by reviewing the key safety strategies and techniques from part one. Explain that this lesson will focus on another specific hazard: dog avoidance. Staying safe in these situations requires different strategies.

Dog Avoidance

Explain to the students: People sometimes encounter dogs while riding their bikes, and this may be hazardous, especially dogs that are off-leash and not fenced. Dogs tend to protect what they see as their territory, and this may include homes, yards, and cars. They may bark or chase riders. Dogs can sense fear, so try to remain calm if you encounter an angry canine. You'll feel more confident, and the dog likely will sense this too. Once you move past their territory, they will usually lose interest. However, if a dog does chase you, here are some options. Think ahead of time about which actions are right for you.

Don’t try to outrun the dog unless you are a very strong rider. If you can’t completely outrun them, the dog may catch your wheel and knock you down.

While on the bike, don’t try anything beyond your bike-handling skills.
In a loud, firm voice say, “No!” “Bad dog!” “Go Home!” or other common commands.
Carry an “English Bobby”-style or dog-training whistle; they can often stop charging dogs in their tracks and send them home.

Just stop. If you do, the dog may also stop, allowing you to walk or ride slowly away.
Get off your bike quickly; if the dog attacks, use your bike as a barrier.

If a dog is a recurring problem, try to photograph them. Send a polite complaint letter with the photo to the owners as well as copies to the police and local animal authority. Include the statement that the letter constitutes notice to the homeowners that the dog poses a threat, and that this may be used in a lawsuit against them.

Lesson 8: Riding Skills

Grades: 3, 4, 5

Objectives

The first objective is to teach children control of their bicycle while riding in a straight line and looking back over their shoulder to identify overtaking traffic.

A second objective is quick hazard avoidance. Children learn to identify a hazard in the roadway and dodge it without weaving into traffic and/or falling. If their front tire avoids the hazard, they will not lose control, even if the rear tire hits it.

Background

According to the NHTSA, it is essential that riders:

Drive Defensively: Be focused and alert.

Be focused and alert to the road and all traffic around you; anticipate what others may do before they do it. This is defensive driving—the quicker you notice a potential conflict, the quicker you can act to avoid a potential crash:

- Drive with the flow, in the same direction as traffic.
- Obey street signs, signals, and road markings, just like a car.
- Assume the other person doesn't see you; look ahead for hazards or situations to avoid that may cause you to fall, like toys, pebbles, potholes, grates, train tracks.
- Do not text, listen to music or use anything that distracts you by taking your eyes and ears or your mind off the road and traffic.

Preparation

Lesson time

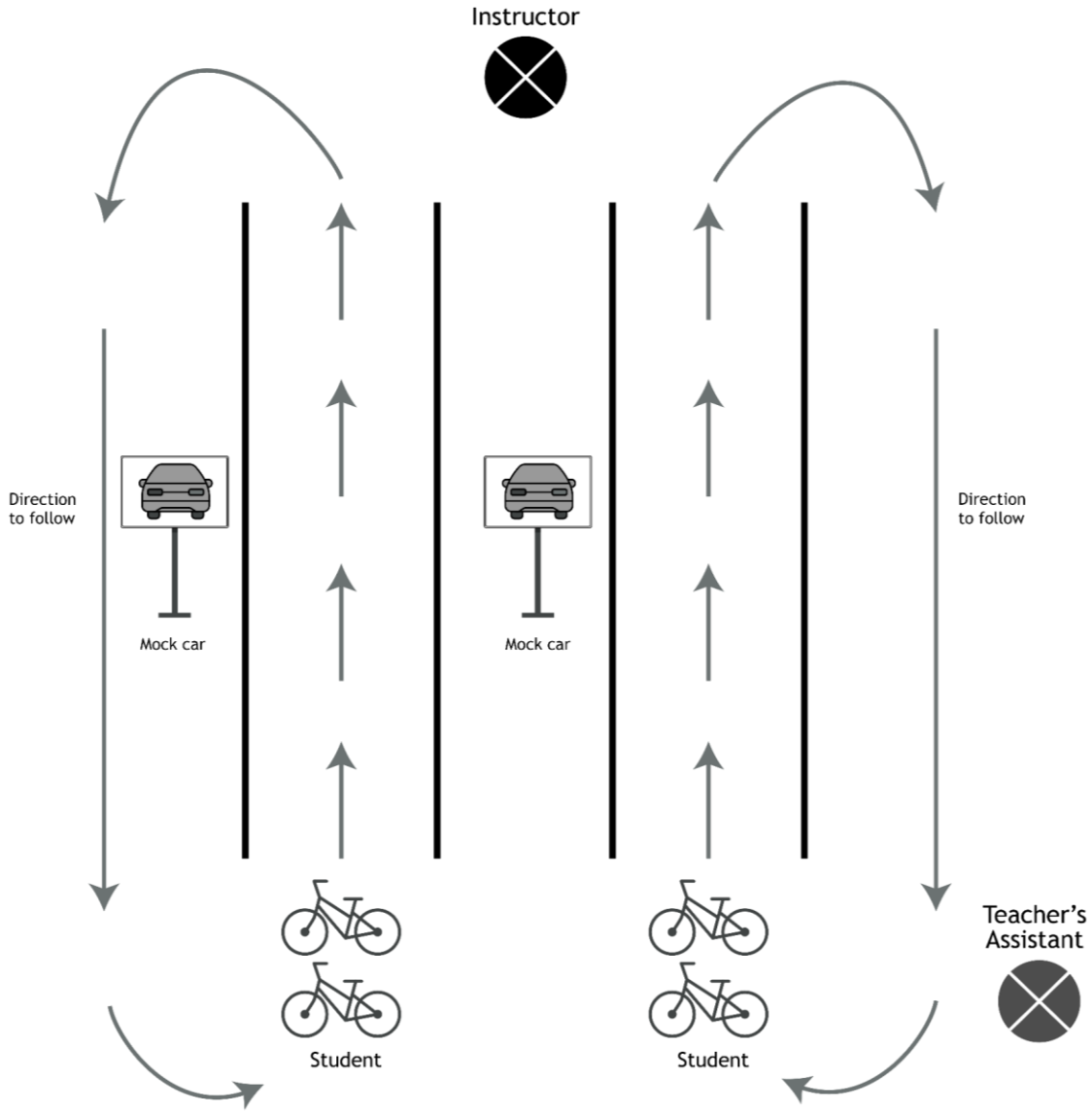
45 minutes to 1 hour (This lesson can be broken up into 2 sessions or more.)

Materials

- Bicycles and helmets for each student
- Cones
- Poly spots or other flat, visible markers
- Mock car boards
- Bean bags or other markers
- A helper if possible

Setup

Use cones and markers to lay out a path as shown below.



Riding Skills Diagram

Procedures and Activities

Activity: Introduce Scanning and its importance

According to the National Institutes of Health (NIH), the second most prevalent cause of fatalities among adolescent cyclists is making left turns or swerving into traffic without looking back (failing to yield right of way). Many cyclists have a problem with looking back (scanning) riding in a straight line. This skill will help cyclists become more confident and safer. Practice looking over your left shoulder first. This is the primary side for traffic identification, since you ride on the right side of the road.

Explain to students that they will be working in pairs to practice scanning.

Activity: Stationary Scan

1. Students are grouped with partners.
2. One partner holds the bicycle stationary in front while their partner sits on the bicycle as if they were riding.
3. The partner holding the bicycle tells the rider to scan.
4. The cyclist looks over their left shoulder and verbally identifies an object behind them.
5. The objective for the cyclist is to keep their balance and bicycle straight.
6. The students repeat the exercise after switching partners.
7. Once the students are confident with the stationary scanning, they can try the active scanning.

Activity: Active Scan

1. The cyclist rides his or her bicycle in a straight line while a partner follows with a card. The partner calls “scan” while holding a card, a mock car poster, either facing the cyclist or with the back side to the cyclist for the cyclist to identify by looking over his or her left shoulder.

2. The cyclist needs to verbally identify the card by saying “car” or “no car” while keeping control of his or her bicycle.

3. A second variation (see illustration) of this is to have the teacher or volunteer in a stationary location holding a mock car sign. As the cyclists pass, the person holding the sign calls out “SCAN” and puts the mock car sign either face up (for which the cyclists verbally call out “Car” or “Not safe”) or face down (the cyclists identify this by calling out “No car” or “Safe”). The correct verbal answer is given while keeping the bicycle going in a straight line.

4. Much practice is needed on this technique, so it is recommended that several tries be given to the student.

Activity: Rock Dodge

Gather the students back as a group. Explain that at times there is no time to scan behind and pull around. The technique you are sharing is a “snap” motion, left and then right. Tell them that this is an advanced skill taught as an emergency maneuver to avoid road debris when there is no time to scan behind and pull around.

Demonstrate the snapping motion of the handlebars. Students will be afraid at first to quickly turn their handlebars, but gradually, and with practice, they can learn the technique “snap” (left) “snap” (right).

If possible, have a helper lay out bean bag obstacles along the path. Explain the final activity:

- Students ride down the middle of the row. When they come to a hazard, they give a quick turn (left snap, right snap) of the handlebars to get around the object. This is not a figure-eight maneuver.
- This is an object or road hazard that they see at the last second, not something they have time to avoid by scanning. If they hit it with their front tire, it can cause them to fall.
- They must keep the bicycle going in a straight line. It is acceptable if the back bicycle tire runs over the object.

Closure and review

Invite students to share how they felt going through the practice sessions and review key messages.

Students could also complete the activity from the National Highway Traffic Safety Administration (NHTSA) identifying potential hazards.

Lesson 9: Riding with Traffic

Grades: 3, 4, 5

Objectives

- Explain the laws that pertain to the safe operation of a bicycle in any context.
- Teach how to turn at a simple intersection.

Background

Many cyclists, pedestrians, and motorists are not aware of pedestrian and bicyclist traffic laws. They do not know regulations concerning rights-of-way, correct roadway positions, turn signals or lighting requirements. Reviewing the laws teaches students how to act in traffic and helps them anticipate the actions of pedestrians, cyclists, and motorists.

By Colorado State Law, a cyclist has a 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 safer - without them roads would be completely chaotic. Hand signals are essential to inform other road users of your intentions so they can predict your actions.

As shared by DriveSafe, Colorado has new laws in reference to cycling.

This new law applies to all bicyclists who are 15 years or older (or younger bicyclists who are riding with an adult). The most important aspects of this law are:

- **Bicyclists are allowed to treat stop signs as yield signs.** This means that bicyclists who arrive at intersections controlled by stop signs can slow down to 10 mph (or less) and continue through the intersection if no oncoming traffic or pedestrians are present. In other words, individuals who travel on bikes are allowed to engage in rolling stops at stop signs, though they still must yield the right of way to vehicles and people on foot.
- **When encountering red stop lights at intersections, bicyclists are now able to treat stop lights as stop signs**. Bicyclists do need to come to a complete stop, but after yielding to any oncoming traffic or pedestrians, they are able to proceed through the intersection or turn right before the light turns green. They are also able to turn left when one-way streets allow for left turns.
- **The law doesn't only apply to people on bikes**. It also applies to individuals who use electric bikes and electric scooters (though mopeds are not included).
- **Intersections with specific traffic lights or signs prohibiting the measures legalized in the new law are not subject to the rules of the new law**. In other words, if there are clear instructions directed at individuals on bikes, e-bikes, or

e-scooters, those instructions must be obeyed, even if they conflict with the new law.

Key Messages

- Cyclists fare best when they act and are treated as drivers of vehicles.
- A bicycle is a vehicle just like a car.
- Always follow the basic rules no matter where you are riding.
- Riders must always be aware of traffic (scanning and looking right-left-right).
- Cyclists must ride to the right but not too close to the curb.

Preparation

Lesson time

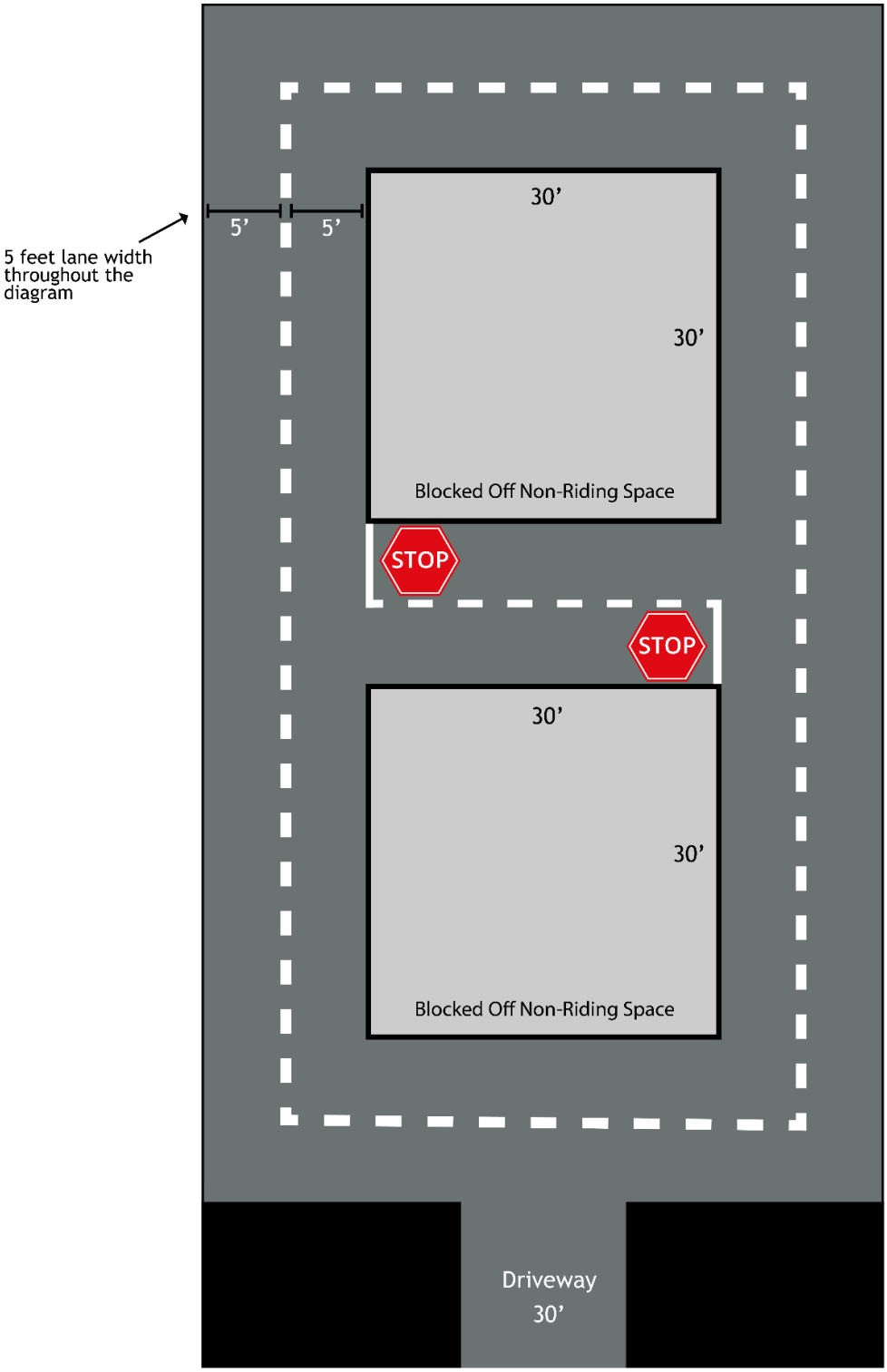
1 hour

Materials

- Printed rules of the road, if desired
- Chalkboard, whiteboard, or laminated intersection poster
- Dry erase markers
- Stop signs (2)
- Bicycles and helmets for each student
- Helpers, if possible, to set up the practice course.

Setup

For riding activity, see diagram below. Note, the practice course for this module takes a lot of time and space to build. Please allow enough time to scout out and build the course prior to class.



Riding with Traffic Diagram

Procedures and Activities

Activity: Rules of the Road Discussion

Share the information below, emphasizing that safe riding applies no matter where you are. You can share these rules in a question-answer format, inviting students to share what they know, or print out the rules listed below to read as a group and discuss.

Ride in the same direction as traffic (Bike right, go with the flow)
Ride on the right, in the same direction as the traffic next to you. Riding with the flow of traffic makes you more visible. Riding on the left, against traffic, is illegal and dangerous. Motorists and other road users are not looking for bicyclists on the wrong side of the road. Riding the wrong way increases the chance of a head-on collision with vehicles moving with the normal traffic flow.

Obey all traffic signs
Know and obey all traffic laws. Give motorists a reason to respect bicyclists! It is dangerous to ride through stop signs (or, for riders 15 and older or those riding with an adult, to ride without slowing down and yielding,) ride through red lights, impede traffic, ride several abreast, or ride the wrong way down a street. These illegal actions reinforce the myth that bicycle drivers are irresponsible and do not belong on the road. By driving your bicycle in a safe manner (watching out for yourself as well as others) you make it easier for motorists to treat you as an equal on the road and be polite to you or the next cyclist they see.

Colorado's Safety Stop Law
In 2022, the Colorado Safety Stop Law was passed that allows people, 15 years and older, on bikes to treat stop signs as yield signs and red lights as stop signs.

Signal your turns
Use the proper hand signals for left or right turns and for slowing or stopping.

- Left turns are signaled by sticking your left hand out.
- Right turns signaled by the left arm extended out with the 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 when being overtaken by another vehicle.
Ride on the paved shoulder whenever a paved shoulder suitable for bicycle riding is present.
Ride in the right lane except when:

- Overtaking another bicycle or vehicle proceeding in the same direction
- Preparing for a left turn

- Avoiding hazardous conditions

Ride in a straight line
Riding predictably will make you more visible to motorists. 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 sideswiped by a vehicle when you need to merge back into 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 turn the corner and hit you.

Riding on Sidewalks and in Crosswalks
Check your local ordinances for whether it is legal to ride on sidewalks in your community. Where sidewalk-riding is legal, bicyclists on sidewalks have the same rights and responsibilities as pedestrians and must ride with caution for the safety of pedestrians and stay alert for drivers when crossing driveways, alleys, and crosswalks. Bicyclists riding on the sidewalk where it is legal must yield to pedestrians. You are allowed to ride your bicycle on a sidewalk or on a crosswalk unless it is prohibited by official traffic control devices or local ordinances.

When riding on a sidewalk or in a crosswalk, you must observe all the rules and regulations applicable to pedestrians, yield the right-of-way to pedestrians, and give an audible signal before passing them. An audible signal can be a bell, horn or your voice saying, "Hello, passing on your left." 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 bicycle in busy shopping areas or on downtown sidewalks. Sidewalks are for pedestrians, not bicyclists, and you should be courteous and ride slowly and cautiously.

Activity: Practicing Bike Skills

Talk to students about how a bicycle is a vehicle, just slower and smaller than a car.

Introduce the word "intersection", explaining that intersections are where two roads meet; some have stop signs, and others do not. Tell the group they will be practicing all the skills they have learned so far on a course with intersections.

Remind students to apply these skills:

- Ride to the right.
- Follow all traffic laws.
- Use hand signals to show stops and turns.
- Scan for traffic before turning to identify potential conflicts.
- Look right-left-right for cars entering intersections. This also lets you identify potential conflicts.
- Ride in a straight line approximately 3 feet away from the curb.

After going over the rules, bring the students out to the practice course. Share the instructions for the activity:

- The class will follow the leader until the whistle is blown.
- After the whistle is blown everyone can choose which way to go.
- In the event there is an emergency or need to all stop and listen, the instructor will blow the whistle twice.
- Everyone must follow all rules.
- Everyone must use hand signals.
- Everyone must scan for traffic.
- Explain right-of-way and yielding.
- No U-Turns.

After explaining the expectations, begin:

As the instructor, lead the class through the course.

Blow the whistle after the entire class has gone through the full course to signal that students will then make their own directions.

Blow the whistle twice to stop the class in case of emergency, disorder, or end of class.

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

Closure and review

Invite students to share their experiences and discuss.

Lesson 10: Navigating

Grades: 4, 5, 6

Objective

To help students understand that choosing the best route may depend on the mode of transportation.

Background

This lesson is a great opportunity to get your local planning office, bicycling club, and parents involved. As students are using bicycles to get to and from school, activities, and friends' houses they should learn how to pick appropriate routes and navigate.

Preparation

Lesson time

45 minutes

Materials

- Maps of the local area
- Parent volunteers or local cyclists

Procedures and Activities

Activity: Mapping Routes

Ask students to make a list of places near students' homes and schools that they frequently visit.

Ask the students what makes a good route.
Have volunteers work with students to choose appropriate bicycling routes taking into consideration bicycle trails, bike lanes, traffic speeds, crosswalks, signalized intersections, and roadway shoulders. It is important to keep in mind that the best bicycling route is not usually the best driving route.

Note: Internet mapping sites such as Google Maps have begun integrating bicycling as an option when one enters a location for directions. Local communities may also have mapping software. Check local agency websites. Students may be able to use the internet to generate a route. If this is the case, use the internet route.

Closure and review

Have students present their routes to the class and review the conditions they encounter. Compare different routes that students chose.

Lesson 11: Seeing, Being Seen

Grades: 4, 5, 6

Objective

To help students understand what it means to be visible to traffic. There are three activities in this lesson. Activity 2 is suitable for older students.

Background

When bicycle and pedestrian-related crashes occur, it is often because the motor vehicle driver fails to see the bicyclist or pedestrian. Bright and light colors, such as white, yellow, orange, neon, and hot pink, are the most visible. Contrasting colors, such as stripes, are also great attention-getters. Children should wear these colors whenever they bike or walk. Additionally, backpacks and helmets should be brightly colored. Children should avoid riding at night or dusk when visibility is low. However, those who must travel at such times need to wear a retro-reflective jacket with stripes or other reflective equipment over their clothing and have lights on their bike. In addition, it is critical to ride where motorists are looking for traffic or obstacles.

Preparation

Lesson time

45 minutes to 1 hour (This lesson can be divided into multiple sessions.)

Materials

The materials below are for a third, optional extension activity:

- Bicycle equipped with proper reflectors and lights
- Bright backpack with retro-reflective tape (optional)
- Retro-reflective gear (vest, arm/leg bands, adhesive tape)
- Bright biking outfit including helmet, shorts, and/or jacket
- Flashlight
- Room that can be made dark by turning out lights and drawing shades

Procedures and Activities

Activity: Reflecting on Visibility

1. Dim the lights and have the class close their eyes. Have four of the volunteers, some wearing light-colored tee shirts and some dark stand side-by-side in a row at the front of the room. Have the fifth volunteer stand against the wall at the side of the class.
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 not?

3. Ask students which colors are most visible.
4. Explain to students which colors are most visible. (See notes at end of lesson.)
5. Ask students what, other than colors, can make them more visible. Reflectors, retro-reflective materials, and lights are answers. But equally important is being where motorists are looking for you.
6. 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.
7. Show students retro-reflective material. Turn the lights out, and shine a flashlight on the material to show the class how the material stands out.
8. Discuss visibility, incorporating the following questions and notes:

    - Why is being visible important when riding a bicycle?
    - How can you make sure a vehicle driver sees you when you are riding your bike?
    - How can you be predictable in traffic?
    - The most visible colors—yellow, white, orange, neon, hot pink, bright green; also, contrasting colors and patterns such as hot pink and blue, stripes and polka-dots.
    - Least visible colors—dark colors such as black, brown, navy, forest green, and camouflage materials.
    - Students should avoid night riding. Those who must walk or ride at dusk or at night need to wear retro-reflective material over clothing, on backpacks, and on helmets. According to Colorado Law, a bicycle needs a white light in the front and a red light on the back when ridden at night.
    - Retro-reflectives are materials that reflect light back to the light source when shined upon.
    - Students can help motorists see them by riding in a location that is consistent with where motorists are looking.

Activity: Where Drivers Look

1. Have the class sit facing the front of the room. Tell them they are going to pretend they are driving cars and that they want to turn left across (insert name of busy local multi-lane highway here) to get to a movie theater.
2. Ask if they think they will be able to just drive up and turn left without stopping. If not, why not? What do they have to wait for?
3. So, they must wait for cars coming from the opposite direction. Tell them cars are coming…still coming…still coming…still coming, the movie is about to start…still coming…still coming…Okay its clear no cars are coming what do you do?
4. Ask if they think motorists are likely to look behind them prior to turning? What would happen to a bicyclist or pedestrian who was crossing coming from behind the motorist?
5. Have the class sit facing the front of the room. Tell them they are going to pretend they are driving cars and that they want to turn right onto (insert name of busy local multi-lane highway here) to get to or leave school.

6. Ask if they think they will be able to just drive up and turn right without stopping. If not, why not? What do they have to wait for? Which direction will cars be coming from?
7. So, they must wait for cars coming from their left. Tell them cars are coming…still coming…still coming…still coming, gosh it's been a long day, I really want to get home…still coming…still coming…Okay it's clear no cars are coming what do you do?
8. Ask if they think motorists are likely to look to their right prior to turning? What would happen to a bicyclist or pedestrian who was crossing the drive coming from the right?
9. Ask what the students can do when they are riding their bike to reduce the chance of a crash with a turning motorist.
10. Conclude with a discussion asking students to think from the point of view of the driver. Ask:

- Where do drivers look when they are driving?
- What about turning motorists?
- What are they looking for?
- How can you make sure a motor vehicle driver sees you when you are riding your bike?
- How can you be predictable in traffic?
- What can you do to prevent a crash when a motorist is not looking for you?

Extension Activity: Gearing Up

1. Talk to students about how bright and light-colored clothing and accessories make cyclists more visible to motorists. Many state laws require that a bicycle operated between sunset and sunrise be equipped with a white front light visible for 500 feet, and on the back, a red light that is visible for 600 feet. Additionally, both wheels should be equipped with reflectors.
2. Ask the entire class to "dress-up" for visibility one day.
3. Ask volunteer students to "show and tell" their gear. You may offer awards for the best outfits.
4. Ask students to explain why they chose particular items.
5. Teachers should also dress up and explain their choices.
6. Ask the class to gather around the bicycle while demonstrating correct lighting and reflector placement for night riding.
7. Darken the room and let students take turns shining the flashlight at retro-reflective gear. Turn on bike lights for students to see.
8. Allow students to try on the retro-reflective gear.

Closure and review

Invite students to share their impressions while reviewing key messages. Here are some notes to incorporate into concluding discussion to emphasize the importance of visibility and ways to enhance it:

- Most motorists are looking for other motorists, not for bicyclists and pedestrians.
- The farther a bicyclist or pedestrian is from the travel lanes, the less likely a motorist is to see the bicyclist or pedestrian.
- Riding against traffic is a contributing cause in almost one third of all bike crashes.
- If bicyclists or pedestrians ride against traffic on the sidewalk or on a path next to the roadway, they must be aware of the fact that most motorists are not looking for a bicyclist coming from against traffic and that they, as bicyclists riding against traffic on the sidewalk or path, must be extra careful looking for motorists who are turning
- Do not assume that just because a motorist is stopped at an intersection that the motorist sees you. A motorist waiting behind the crosswalk may move across the crosswalk unexpectedly to improve his or her sight lines to traffic coming from the left.
- If possible, bicyclists should make eye contact with motorists waiting to turn to ensure the motorists see them. If they cannot make eye contact, bicyclists riding against traffic should assume they are not seen.

Lesson 12: Dealing with Driveways

Grades: 3, 4, 5, 6

Objectives

- Students will understand the mechanics of dealing with intersections.
- Cyclists will learn to find the edge of the street.
- Cyclists will learn to look left, right, and left again and go when it is clear.
- Cyclists will learn how to deal with visual barriers.
- Cyclists will learn how to cross over the safest way to the right side of the road or the sidewalk.

Background

The number one cause of child fatalities on bicycles is failing to stop before entering the street (i.e., midblock ride out or driveway ride out). In many cases, the cyclist's and motorist's vision are obstructed by visual barriers: parked cars, shrubs, electrical boxes, and the like. Students must learn to STOP, look left, right, and left again before proceeding into traffic. Students look left first because that is the side cars approach closest to the rider, then right, and left again to make sure nothing entered the roadway while looking right.

Preparation

Lesson time

15 minutes

Materials

- Visual barriers such as a parked car, cardboard shrubs, electrical boxes, and trash cans
- Cones
- Bicycles and helmets for each student

Setup

Choose an actual driveway or set up an area to function as a driveway, arranging visual barriers and cones to serve as boundaries for student practice.

Procedures and Activities

Activity: Exiting a driveway safely

Share the background information above to introduce the practice session and stress the importance of being alert and aware when leaving driveways. Explain how students should

proceed:

1. Students start to ride out of the driveway.
2. Have students identify the edge of the roadway and stop at the edge.
3. Have students look left, right, and left again.
4. Ask students to identify visual barriers on the sides of the street.
5. Ask students to identify options to see around the visual barrier:

    - They can move to the other side of the visual barrier, so they are not blocked in.
    - They can pull out just enough to see around the visual barrier to make sure no cars are coming.
    - To make sure the bicycle is not sticking out in traffic, the student needs to slide off the seat and lean over handlebars.

6. Once clear of the barrier, have students look left, right, and left again.
7. Students should go straight across the street to the right side of the roadway or sidewalk continuing to look as they cross.
8. Students have the option of walking their bikes on the sidewalk to an intersection and then crossing.

Have students repeat this process until each of them can comfortably go through the process and understand the dangers visible barriers present.

Lesson 13: Intersections

Grades: 3, 4, 5

Objective

Teach children how to turn right and left and how to negotiate traffic when going straight through an intersection.

Background

Being a predictable cyclist includes knowing when to stop, how to search for traffic and in what direction to expect traffic. Other important bicycle safety practices include stopping at stop signs, obeying all traffic- control devices, and using proper hand signals to communicate with motorists, and proper road positioning. All these skills are necessary to successfully negotiate intersections.

Preparation

Lesson time

30 minutes

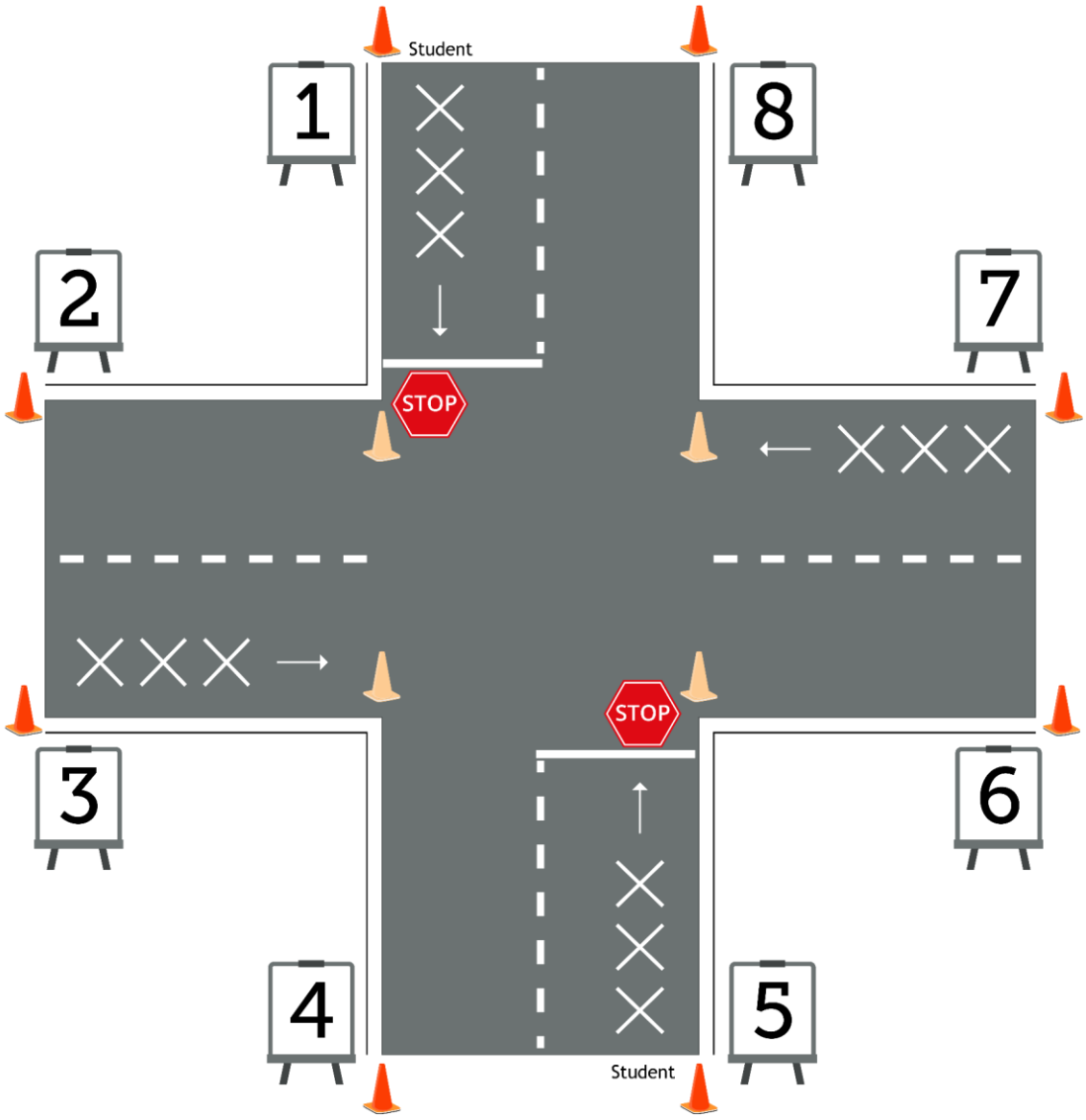
Materials

Visual barriers such as a parked car, shrubs, electrical boxes, trash cans, or stand-ins for items such as these
Cones
Ropes
Large numbered cards (1 - 8)

Setup

Use ropes or line chalk to outline the borders of the intersection and stop bars. This can be set up first as a four-way stop; then, later subtract two stop signs to create a two-way stop.
At this changing point, explain how the east-west traffic does not have to stop and that north-south traffic must stop and yield on the right-of-way.

See diagram below for reference.



Intersections Stations Diagram

Procedures and Activities

Activity: Intersection Stations

Introduce the concept of intersections by inviting students to share their background knowledge and in turn sharing the background information above. Next, explain the stations activity as follows:

1. Divide students among the eight stations.
2. Have each student travel through the intersection negotiating in this order:

    - Two right turns
    - Two straight through maneuvers
    - Two left turns

3. This is a continuous activity. Students will yield and stop for each other when appropriate.
4. Have each student verbalize their actions.
5. The teacher stands in the center of the intersection to serve as the traffic cop.
6. Non-cycling students or parent volunteers can be added to the traffic mix eventually as “mock cars” and as crossing pedestrians.

Closure and review

Invite students to discuss their experience with this activity.

Lesson 14: Road Position– Turning and Signaling

Grades: 3, 4, 5

Objective

Children will learn where to position themselves on the road when going straight through an intersection or when turning right and left. Children will also learn the proper hand signals for right and left turns.

Preparation

Lesson time

30 minutes

Materials

- Bicycles and helmets for each student
- Cones
- Rope or chalk to mark lane and intersection crossing

Setup

Use the chalk or rope and cones to prepare a mock 4-way intersection.

Procedures and Activities

Activity: Opening Discussion

Ask students to remind you which way cyclists ride, with or against traffic, and respond. Explain that there are some valid reasons for riding with traffic. Ask the students what some of those reasons might be.

Answer: It's the legal way to ride; motorists do not expect to see traffic coming in the opposite direction. If bicyclists expect to be seen, they must ride where motorists expect to see traffic on the right; traffic control devices face the normal flow of traffic.

According to the NHTSA, Wrong-way riding results in nearly one-third of all car/bike crashes.

Wrong-way riders face the danger of a head-on crash with cyclists who are obeying the law.

Activity: Signaling and Turning

Demonstrate appropriate hand signals then while students are sitting on their bicycles, have children practice the hand signal for a right turn (right arm and hand straight out to the right) and a left turn (right arm with hand pointed up).

Emphasize to children the importance of signaling their intentions by signaling the way they want to go and holding the signal long enough for a motorist behind them to know what they are doing. Practice the verbal (voice) commands “stopping, turning right” or “scanning, turning left”.

Have the children line up as in the stopping line drill, to begin practicing road position for right and left turns and straight through movement.

Discuss and demonstrate the proper procedure for making a right turn. Verbalize each step.

- Scan behind for on-coming traffic.
- Remain on the right-hand side of the road. Give your right-hand turn signal.
- Stop at the stop sign, look left, right, and left again.
- When clear, give the right-hand signal once again before proceeding to turn right.

Discuss and demonstrate a straight through road position to the second stop sign. Traveling straight through an intersection requires cyclists to move closer to the middle of the travel lane to let traffic know their intent to go straight through the intersection and to prevent any right turning cars from pulling in front of them.

Discuss and demonstrate the proper traffic procedure for left turns. (Verbalize each step.) There are different ways to make left turns depending on the amount of traffic, number of travel lanes, and skill abilities of the bicyclists. See the descriptions below and diagram for reference.

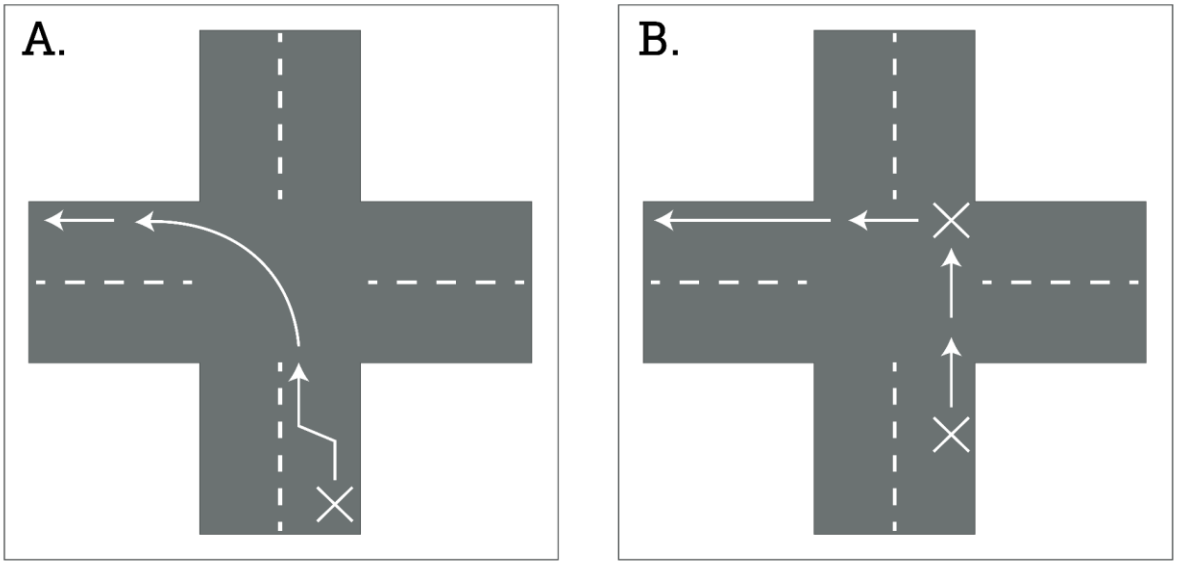
The “Conventional” Left Turn:

- Scan behind for traffic before moving across the lane to the left side of the travel lane.
- After or while scanning, give the left-turn signal.
- Move across the lane to the left side of the lane or the middle of the left turning lane when it is clear and safe to do so.
- Stop at the stop sign, look left, right, left, then look across the intersection to be sure there is no traffic coming straight through.
- When clear, give the left-turn signal once again before proceeding.
- Move to the right-hand side of the travel lane after making the left turn and continue.

Another Option for Left Turns is the “L” Turn:

- Continue riding across the intersection scanning for any turning cars and stop at the far corner of the intersection.

- Turn the bike to the left and wait for the green light. Then proceed on the right side of the roadway.



Turning at Intersections Diagram

Closure and review

Review key points.

The NHTSA provides a Hand Signals document that could optionally be printed and provided to students.

Lesson 15: Parking and Locking

Grades: 3, 4, 5

Objective

To help students build awareness of proper selection of parking locations and locking techniques.

Key Messages

Bike theft can happen, but with appropriate precautions you can keep your bike safer.
The Bike Index registry indicated that bicycle thefts in 2024 increased by 15%. According to Bike Index, “In the latest academic study investigating the actual number of bicycle thefts in the U.S. (released January 2025), The Institute of Transportation Studies of University of California Davis, The Department of Geography at University of California Santa Barbara, and Bike Index, in partnership with YouGov revealed that 2,376,578 bicycles are stolen annually in the U.S.”

Preparation

Lesson time

10 minutes

Materials

- A bicycle
- 1 U-lock
- 1 Cable lock
- Air Tags (can be used to track a stolen bicycle)
- Optional: bicycles, bike racks, and assorted locks of each type for hands-on practice

Setup

Have a bike standing where the class can gather around and see it.

Procedures and Activities

Activity: Discussion and introduction to locks

1. Ask students:

   What might happen if you leave your bicycle unlocked?
   Answer: It might get stolen.

2. Explain that you should never leave your bike unlocked even if it seems safe or if you're only leaving it for a short time. Although no lock is a guarantee against theft, a good lock job will strongly deter most thieves.

3. Discuss different types of locks and related benefits of each.

   Cable lock: This lock is easier to cut, but it can run it through both wheels and frame and even saddle, and around posts/trees.

   U Lock: This lock is hard to break but it's also harder to lock all parts of the bike when using.

4. Highlight parts of bike that should be locked:

   - Frame locking is most important.
   - Lock one or both wheels if possible.
   - If possible, lock the saddle, too, or use a saddle cable in a high crime area or with a very expensive saddle.

5. Point out some common bike locking mistakes:
   - Just locking a wheel but not the frame
   - Not getting lock completely closed
   - Locking handlebars or seat post
   - Locking on 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

6. Emphasize that students should lock only to designated bike parking infrastructure rather than trees, fences, signposts etc. because it may be illegal and it's usually more secure.

7. Remind students to keep their combination or key in a safe place and have a spare available as a backup.

Extension Activity: Hands-on Practice

If time, space, and materials are available, have students go out to designated bike racks to practice locking and unlocking. This can also be an opportunity to identify strengths and weaknesses of the different locks and positioning.

Closure and review

Invite students to share their experiences.

Lesson 16: Riding on a Path

Grades: 3, 4, 5

Objective

Students will learn how to safely ride on a multi-use path.

Key Messages

- The rules still apply on a multi-use path.
- Be aware and respectful of other users of 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.

Preparation

Lesson time

15 minutes

Procedures and Activities

Activity: Discussion

Ask students the following:

What is a multi-use path?
Answer: A multi-use path is usually paved and is a shared byway for non- motorized traffic including walkers, joggers, roller bladers, bikes, skateboards, scooters, and others.

Why is it important to pay attention to who else is using the path?
Answer: Because of the diverse nature of the traffic on a multi-use path, it is essential to be aware of everyone around you.

Why is it important to follow the rules when riding on a multi use path?
Answer: Multi-use paths are a very popular place to ride which means that they get used heavily; therefore, it is important that all users adhere to the same rules to keep it safe for everyone.

Why might riding on the sidewalk be more dangerous than riding on a roadway?
Answer: Riding on the sidewalk is often more dangerous than riding in the road, especially at intersections and when crossing driveways.
Drivers may not be looking for cyclists as they turn into the roadway.

Review the following rules for riding on a multi-use path:

- Always ride as far to the right as possible (go with the flow).
- 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 by ringing your bell or loudly saying "passing on your left."
- Give other path users at least 3 feet of clearance when passing while being mindful of oncoming traffic in the other direction.
- Limit your speed to 15 mph or less.
- Look out for hazards, such as:
    - Loose material like gravel, sand, or glass.
    - Unpredictable path users such as small children or dogs.
    - Blind curves and intersections.
    - Underpasses - ring your bell even if you can't see anyone coming.
    - Slippery surfaces - wet or icy bridges, metal plates.
- Always signal your turns.
- Always stop at intersections with the road or driveways.
- Slow to walking speed or dismount in crosswalks.
- Even if you have the right-of-way, make eye contact with drivers before proceeding at an intersection.
- Watch out for:
    - Turning motorists (right turn in your lane or left turn in oncoming lane).
    - Motorists exiting driveway or side streets

Optional Extension

Take a trip to a local path to observe and reinforce key messages.