



PENNSYLVANIA  
BICYCLE EDUCATION  
LESSON PLANS

SIXTH GRADE

August 2011



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## ACKNOWLEDGEMENTS



## Acknowledgements

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### Acknowledgements

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# CURRICULUM INTRODUCTION



# Introduction

Bicycling is an excellent life-long activity for recreation, transportation, fitness, and good health.

The purpose of these lessons is to encourage children to develop into young (and later adult) cyclists who possess a good understanding of safe and legal bicycling practices.

Knowledge and practice of safe cycling skills is imperative, as eventually, children who ride bicycles will ride with vehicular traffic.

The specific goals of these lessons are as follows:

- To teach students the importance of wearing a properly fitted and approved helmet whenever they ride
- To teach students the handling and safety skills appropriate to their age and stage of bicycling
- To teach students to understand that a bicycle is a vehicle that has all the rights and obligations of any other legal vehicle on the road
- To teach students about the health and fitness benefits of cycling
- To teach students that cycling can be a healthy life-long activity that may potentially increase positively in intensity and complexity with age and experience

## Curricula Outlines: Third and Sixth Grades

Following are outlines and descriptions of the third and sixth grade curricula. Comprehensive, versatile lesson plans have been designed to accommodate teachers in various situations; teachers may choose plans and activities that best fit their needs, time constraints, and equipment availability. As noted in the following charts, some plans are best suited for use with bicycling equipment for each child, some can be adapted for use with a single bike and single helmet, and some are specially designed for pencil-and-paper classroom use.

If bicycling equipment is available for student use, you may choose to focus on the “Bicycle Safety and Injury Prevention,” “Bicycle Handling Skills,” and “Understanding the Cycling Environment” lessons. Alternatively, you might choose to teach elements (short modules provided within the lesson plans) from the aforementioned lessons in conjunction with the “Cycling and Your Health” and “Cycling in Your Community” lessons.

If bicycling equipment is not available for each student, make every effort to acquire or borrow a single bicycle and helmet (resource information to follow) in order to teach several of the modules included in the “Bicycle Safety and Injury Prevention” and “Bicycle Handling Skills” lessons. The “Operating Environment” lesson can be executed without cycling equipment; students can practice signaling and walking through a course designed to teach awareness for cyclists riding on sidewalks, streets and at intersections. The “Cycling and Your Health” and “Cycling in Your Community” lessons do not require cycling equipment.

These lesson plans have been designed to accommodate teachers with various needs. The following charts are provided to help teachers plan accordingly. Lessons and modules marked

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“High priority” are meant to help teachers with time constraints prioritize in order to convey the very basics of bicycle safety in a limited amount of time.

Note that Appendix I provides photographs and descriptions to illustrate important cycling concepts and safety procedures necessary for the teaching of the lessons for Handling Skills, Operating Environment, and Bicycle Injury and Prevention. Appendix I is meant as a resource for teachers.

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Third grade plans:

Lesson Titles	Content	For the very basics of bicycle safety:
A. Bicycle Safety and Injury Prevention	Helmet fitting	High priority
	Pre-ride bicycle check	High priority
B. Bicycle Handling Skills	Starting and stopping	High priority
	Riding in a straight line	High priority
	Practicing controlled riding	
C. Understanding the Cycling Environment	Signaling turns	High priority
	Practicing turns	
	Practicing riding in a straight line and signaling	High priority
D. Cycling and Your Health	Understanding the health benefits of cycling	
E. Cycling in Your Community	Learning about local cycling resources and facilities	



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Sixth grade plans:

Lesson Titles	Content	For the very basics of bicycle safety:
A. Bicycle Safety and Injury Prevention	Helmet fitting	High priority
	Pre-ride bicycle check	High priority
B. Bicycle Handling Skills	Starting and stopping	High priority
	Riding in a straight line	High priority
	Scanning, signaling, and turning	High priority
	Stopping quickly	
	Riding to avoid obstacles	
C. Understanding the Cycling Environment	Signaling turns	High priority
	Crossing streets	High priority
	Entering the roadway from driveways	High priority
	Crossing intersections	High priority
D. Cycling and Your Health	Understanding the health benefits of cycling	
E. Cycling in Your Community	Learning about local cycling resources and facilities	

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## Practice Drills

Plans for the lessons entitled “Handling Skills” and “Operating Environment” provide diagrams for use in setting up and administering cycling drills on hard surface areas such as parking lots or other paved surfaces.

Drill diagrams are designed to be set up quickly and easily (most can be laid out in 2-5 minutes), and where applicable, single layouts may be used for several drills in succession.

Suggested materials for use with these drills include, but are not limited to, the following:

- Measuring tape
- Measured lengths of string
- Sidewalk chalk
- Optional:
  - Wet sponges or tennis ball halves to use as markers
  - Traffic cones

The following tips may be useful in setting up drills based on the diagrams provided:

- Gather all necessary equipment
- Use a measuring tape or your stride to measure long dimensions
- Utilize measured, pre-cut lengths of string. For instance, layout ovals are about 20 feet wide, so a 20-foot piece of string, which can be used repeatedly, can be helpful in minimizing set-up time.
- Measured lengths of string cut to length are helpful for quickly laying out parallel markers (chalk marks/sponges/tennis ball halves). Depending on the ages and skills of students, the path between paired markers can be narrowed or widened. 10-18” between paired markers is suggested.
- Do not bother drawing the rider’s path for the layout ovals. Few well placed markers or chalk marks will guide riders, and a teacher-led demonstration to show students the expected path to travel will illustrate.

Note that layouts need not be replicated exactly. Use the space available to you to provide essential elements for each drill. For example, the intersection drill illustration provided in the “Operating Environment” lesson is meant as a guide. Adapt this layout to your needs. Crosswalks and sidewalks may be illuminated, if you choose, as may the center lines shown on the roadway lanes. Use your judgment to provide students with meaningful practice of the skills introduced in each lesson.

## In-Service Training

The Pennsylvania Safe Routes to School Program provides in-service training for teachers multiple times each year in various locations around the Commonwealth. Attendance at one of these training sessions is highly recommended to more effectively implement these lessons, and is FREE of charge. Participants will be instructed in the basics of bicycle safety and will have the opportunity to practice skills to be taught in the third and sixth grade curricula. In-service

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programs are taught by League of American Bicyclists Cycling Instructors, and League materials are used. Further, upon completion of the in-service program, participants will be certified to teach children the League of American Bicyclists “Youth 123” course.

For more information, check out: <http://www.saferoutespa.org/bicycle-education-training>

### Additional Resources

Teachers unable to attend in-service programs may wish to contact a League of American Bicyclists League Cycling Instructor (LCI) for additional help with concepts and practices included in the curricula.

For more information, visit the League of American Bicyclists website ([www.bikeleague.org](http://www.bikeleague.org)), and:

- Under the “Programs” menu, click “Bike Education.”
- From the list at right, choose “Courses or Instructors by State.”
- Search (by state) for “Instructors (LCIs)”
- Narrow your search to find one of Pennsylvania’s more than 65 LCIs in your area of Pennsylvania.

### Safe Cycling Pledge

Encourage students to vow to practice safe cycling. A pledge or contract can be written or performed orally, and can be quite effective with young students. Develop a pledge that can be practiced and revisited throughout these bicycle safety lessons, and send a copy home to be reviewed and signed by parents and guardians. Encourage students to share their knowledge of cycling safety with their families and to encourage their parents and guardians to promise to help children practice safe cycling by wearing helmets (as required by Pennsylvania law for children eleven years old and younger), properly maintaining bicycling equipment, and by knowing and following the rules of the road for cyclists.

### Certificate of Completion

Design a certificate for students to receive after completion of these lessons. Accompanied by a small prize, such as a bicycling water bottle from a local bike shop (which a shop may donate, if you’re lucky), a certificate can go a long way in reminding and motivating students to practice safe cycling.

### Further Cycling Information

For more information, visit the following websites:

Pennsylvania Safe Routes to School:

<http://www.saferoutespa.org/>



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League of American Bicyclists:

[www.bikeleague.org](http://www.bikeleague.org)

Bicycle Helmet Safety Institute:

[www.bhsi.org](http://www.bhsi.org)

Pennsylvania Department of Transportation:

<http://www.dot.state.pa.us/>

Pennsylvania Vehicle Code (Title 75), Chapter 35, Subchapter A - Operation of Pedalcycles:

[http://www.dmv.state.pa.us/vehicle\\_code/index.shtml](http://www.dmv.state.pa.us/vehicle_code/index.shtml)

# **LESSON A**

## **BICYCLE SAFETY AND INJURY PREVENTION**



# Bicycle Safety and Injury Prevention

## Part I: Helmet Safety

Children under the age of twelve years are required by Pennsylvania law to wear helmets while bicycling.

The use of bicycle helmets has been shown to reduce the risk of head injury by as much as 85 percent and the risk of brain injury by as much as 88 percent.

It is estimated that 75 percent of bicycle-related fatalities among children could be prevented with bicycle helmets.

It is imperative that children be taught to live by the rule: No helmet, no bike.

Teaching helmet lessons in the classroom can be very effective, but nothing beats support from parents and guardians when it comes to getting every kid in a helmet. Consider communicating with parents and guardians to inform them of the law, the above statistics, and the following issues:

- Bicycle helmets are available at local bicycle shops, many major retailers, and at on-line sources. *Consumer Reports* testing and testing performed for the *Bicycle Helmet Safety Institute* ([www.bhsi.org](http://www.bhsi.org)) found that helmet cost does not indicate helmet safety performance. In other words, a \$20 helmet offers as much protection as does a \$150 helmet.
- As of 1999, bicycle helmets sold by U.S. retailers are required to meet safety certification standards put forth by the Consumer Product Safety Commission (CPSC). Helmets are marked inside their shells with CPSC certification stickers; look for this sticker before you buy.
- The Brain Injury Law Center ([www.brain-injury-law-center.com/about-us/helmets-for-kids.html](http://www.brain-injury-law-center.com/about-us/helmets-for-kids.html)) is dedicated to providing free helmets to children under the age of 19. Requests for helmets must be made by parents or guardians, and proof of the age of the child may be required.
- Simple guidelines for parents and guardians:
  - **Helmets on Heads:** Establish the simple rule: No helmet, no bike.



# Bicycle Safety and Injury Prevention

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- Wear one yourself; children are more likely to wear helmets when **you** do too!
- Allow your child pick out his or her own helmet—they're more likely to wear it.
- Make the wheels-and-helmet connection early so it'll become habit as kids age.
- Bicycle helmets are manufactured to be effective for one major impact; helmets must be replaced after each crash or impact. Once the polystyrene shell of a helmet has been compromised due to impact, it is no longer effective.

**Lesson Plan Title:** Bicycle Safety and Injury Prevention Part I: Helmet Fitting

**Concept / Topic To Teach:** Proper fitting of a bicycle helmet

**Academic Standards Addressed:** 10.3.6.A, D  
(Health, Safety and Physical Education) 10.3.6 B

**Standards as they relate to bicycling:** Use appropriate safety equipment and procedures  
Prevent commonly occurring injuries

**General Goal(s):** To teach students to effectively fit and adjust bicycle helmets

**Specific Objectives:** Students will recognize a properly fit helmet

Students will be able to explain how to properly fit a bicycle helmet

**Time Required:** 10-20 minutes depending on equipment available

**Required Materials:** A bicycle helmet, or if possible, one helmet for each student or every two or three students

Helmet Fitting written assessment

Optional: PENNDOT's BikeSafe website provides an on-line diagram with rollover tips for helmet fit at the following link:

<http://www.dot.state.pa.us/bike/web/POPhelmet.htm>

\*Note: This lesson is best if students can perform the hands-on activity of fitting a helmet to their heads and the heads of other students. Local bicycle coalitions, bicycle retailers or rental facilities may be able to loan helmets if you do not have them on-hand.

# Bicycle Safety and Injury Prevention

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In addition, through a program with the Brain Injury Law Center (<http://www.brain-injury-law-center.com/about-us/helmets-for-kids.html>), free helmets are available to individuals under the age of 19 years. Helmets must be requested by parents or guardians.

**Anticipatory Set (Lead-In):** Elicit student responses to the question, “Why is it important to wear a bicycle helmet?”

Protection of your head (and brain!)

It’s the law: Pennsylvania law requires that children under 12 wear approved helmets while riding

Visibility – a helmet is a visible sign that you are a cyclist

Use pictures in Appendix I for reference.

## Step-By-Step Procedures:

- If you have many helmets available, hand out helmets and tell students they have 30 seconds to study their helmets to investigate the parts.
- At the end of 30 seconds, ask students to put their helmets on desks in front of them, or on the floor, and not to touch the helmets.
- Ask students what they learned about the helmet they investigated. They probably will have found that the helmet is light in weight, has some air vents, is covered with a hard plastic shell, and that it can be adjusted in several ways: with the rear adjuster knob or sliding pieces, with the toggle on each ear strap, and with the chin buckle.
- Show students a single helmet. Tell them that a helmet can only protect your head if it is properly fit. It can only work if it fits snugly – thus there are several ways to ensure that a helmet is properly adjusted to your head.
- Explain that helmets come in different sizes, but that most quality helmets available these days can be adjusted to fit heads of many different sizes.

\* Note: The shells of older helmets are not adjustable and require that each individual wear a shell that is chosen for his/her head and made snug with the addition of foam pads (which come with the helmet).





# Bicycle Safety and Injury Prevention

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\* Note: Quality helmets (available in discount retail stores and in bicycle shops) meet impact standards. Look for the CPSC standard sticker inside the helmet's shell; it's been required by law in the US since 1999.

- Ask for a volunteer.
- Explain that you will demonstrate helmet fitting using the Eyes, Ears, Mouth method.
- Eyes: Place the helmet on the volunteer's head and adjust the helmet's shell so that it sits level on the volunteer's head. Ask the volunteer if he can see the brim of the helmet when he looks up (he should be able to).
- Ask the volunteer to shake his/her head. A snug helmet will not move when you shake your head side to side.
- Ears: Adjust the side straps so that the toggles sit just below the volunteer's earlobes and so that the straps create a tight V shape. There should not be much room between the ear strap toggles and the earlobes.
- Mouth: The chin strap is buckled last. When buckled, the strap should allow space for the volunteer to open her mouth. When resting, there should be space for two fingers (and no more!) between the chin and the strap.
- Make it clear to students that a helmet that's been in a crash cannot be used again. Helmets must be replaced after they've sustained impact.
- Use pictures in Appendix I for reference.

**Plan For Independent Practice:** Allow students time to perform two helmet fittings.

**Closure (Reflect Anticipatory Set):** Reflect on why helmets are important and what is meant by the Eyes, Ears, Mouth method.

**Assessment Based On Objectives:** For inspection, require students to properly fit another person with a helmet – this can be done with pairs or with small groups. Teacher can assess and review orally while inspecting.

Allow time for written assessment: **Helmet Fitting**

# Bicycle Safety and Injury Prevention

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## Helmet Fitting

Name \_\_\_\_\_

Circle all correct answers that apply. There may be more than one correct answer for each question:

**1. Wearing a helmet is important because:**

- a. It helps you stay visible on the road
- b. It looks nice
- c. It's not really important
- d. It protects your head and your all-important brain

**2. A Helmet only work properly when it is:**

- a. buckled under your chin
- b. tipped slightly forward so that the back is higher than the front
- c. properly adjusted to the size of your head
- d. tipped slightly back so that your forehead is visible

**3. A good method to use when adjusting a bicycle helmet is:**

- a. The Eyes, Ears and Throat Method
- b. The Ears, Nose and Throat Method
- c. The Eyes, Ears and Chin Method
- d. The Eyes, Ears and Forehead Method

**Circle T for True and F for False**

- 4. T / F The side straps should be adjusted so that they form a tight V just under the earlobes.
- 5. T / F The chin buckle should be buckled first, before performing other strap adjustments.
- 6. T / F A securely fit unbuckled helmet will not move when you shake your head.



## Helmet Fitting

### Answers

Circle all correct answers that apply.

There may be more than one correct answer for each question:

**1. Wearing a helmet is important because:**

- a. It helps you stay visible on the road**
- b. It looks nice
- c. It's not really important
- d. It protects your head and your all-important brain**

**2. A Helmet only work properly when it is:**

- a. buckled under your chin**
- b. tipped slightly forward so that the back is higher than the front
- c. properly adjusted to the size of your head**
- d. tipped slightly back so that your forehead is visible

**3. A good method to use when adjusting a bicycle helmet is:**

- a. The Eyes, Ears and Throat Method
- b. The Ears, Nose and Throat Method
- c. The Eyes, Ears and Chin Method**
- d. The Eyes, Ears and Forehead Method

**Circle T for True and F for False**

- 4. **T / F** The side straps should be adjusted so that they form a tight V just under the earlobes.
- 5. **T / F** The chin buckle should be buckled first, before performing other strap adjustments.
- 6. **T / F** A securely fit unbuckled helmet will not move when you shake your head.



# Bicycle Safety and Injury Prevention

## Part II: ABC Hand Check

A yearly check by a professional bicycle mechanic is recommended for all bicycles. The ABC Hand Check outlined in the following lesson is an excellent practice for students to understand and perform before each ride, but yearly inspection and adjustment by a professional is recommended.

**Lesson Plan Title:** Bicycle Safety and Injury Prevention Part II: ABC Hand Check

**Concept / Topic To Teach:** Safety procedure for pre-ride check of bicycles

**Academic Standards Addressed:** 10.3.6.A, D  
(Health, Safety and Physical Education) 10.3.6 B

**Standards as they relate to bicycling:** Use appropriate safety equipment and procedures  
Prevent commonly occurring injuries

**General Goal(s):** To teach students the ABC Hand Check procedure

To teach students that bicycles need to be regularly checked and tuned by professional bicycle mechanics to ensure their safety

**Specific Objectives:** Students will be able to describe the process for checking whether a bicycle is safe to ride

Students will understand the necessity of performing pre-ride checks to their bicycles

**Time Required:** 10-15 minutes

**Required Materials:** ABC Hand Check handout

**Recommended Materials:** Bicycle, bicycle pump, bicycle inner tube

\*Note: This lesson is best if students can use an actual bicycle to perform the hands-on activity of the ABC Hand Check.



# Bicycle Safety and Injury Prevention

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**Anticipatory Set (Lead-In):** Elicit student responses to the following questions: What if you get on your bike and start riding, and your brakes don't work? What could happen? Do you know of other items on bikes that need to be in good working order?

Use pictures in Appendix I for reference.

## Step-By-Step Procedures:

- Explain to students that checking your bike before you ride it is important to prevent accidents and injuries to yourself and others. Explain to students that it is smart to have your bicycle serviced by a bicycle mechanic at least once a year. Experienced professionals can find problems that you might miss.
- Tell students that you will perform something called an ABC Hand Check on a bicycle so that they can see how the procedure is done.

A is for Air: check the air pressure in each tire by squeezing the tires to see that they have adequate air. Explain to students that bicycle pumps can come with gauges to measure air pressure, and that tires are stamped with ranges for acceptable air pressure. Explain that inner tubes are inside bicycle tires and that they hold air and can be inflated through their valves.

Explain that checking tires for wear and damage is also important and should be done when checking air pressure.

B is for Brakes: Explain how to check coaster and hand brakes. Demonstrate by pedaling backwards or by squeezing the brake levers and examining the brake pads to see that they are clean, straight, and contact the rims properly.

C is for Chain: Show students the chain and explain that it is made up of individual links. Run the chain to see that it runs smoothly and is clean. If the bike has gears, run the chain and shift gears to see that the entire mechanism works smoothly.

Hand is for handlebars: straddle the front wheel of the bike and attempt to turn the handlebars. Explain that they should not move without the wheel also moving, and that they should be facing straight ahead. Also check at this time to be sure the ends of your handlebars are plugged. Open-ended handlebars can be the cause of serious injury or death.



## Bicycle Safety and Injury Prevention

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Check is what you do when you begin your ride – to ensure that your entire bike is running smoothly.

- Use pictures in Appendix I for reference.

**Closure (Reflect Anticipatory Set):** Revisit the discussion that began the lesson and discuss why a bicycle's parts must all be in good working condition in order to keep the rider safe.

**Independent Practice / Assessment Based On Objectives:**

If equipment is available, allow students time to perform a complete ABC Hand Check.

Allow time for written assessment: **ABC Hand Check**

# Bicycle Safety and Injury Prevention

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## ABC Hand Check

Name \_\_\_\_\_



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

**A** stands for \_\_\_\_\_. Check for wear and tear, also.

**B** stands for \_\_\_\_\_. Remember to check the levers and the pads.

**C** stands for \_\_\_\_\_. Make sure it's tight and runs smoothly.

**Hand** stands for \_\_\_\_\_. Make sure they're tight and aligned correctly.

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



## Bicycle Safety and Injury Prevention

### Part III: Safety Equipment and Practices

**Lesson Plan Title:** Bicycle Safety and Injury Prevention Part III: Safety Equipment and Practices

**Concept / Topic To Teach:** Understanding of necessary equipment and practices for safe bicycling

**Academic Standards Addressed:** 10.3.6 A, B, D  
(Health, Safety and Physical Education) 10.1.6 B, C, D  
10.2.6 D

**Standards as they relate to bicycling:** Use appropriate safety equipment and procedures  
Prevent commonly occurring injuries  
Stop to eat and drink fluids at frequent intervals  
Assess the personal use and effects of medications while cycling  
Transport cargo/passengers safely

**General Goal(s):** To teach students about necessary equipment for safe cycling, and to teach practices for checking the safety of that equipment and for using it properly.

**Specific Objectives:** Students will recognize and understand the procedure for checking whether a bicycle is safe to ride

Students will recognize the importance of a properly fit bicycle helmet

Students will understand the purpose of each protective item and safety practice used when riding bicycles

**Time Required:** 30 minutes

**Required Materials:** Sarah's Story handout, ABC Hand Check handout, Appendix I

**Recommended Materials:** Bicycle, helmet, Water bottle, Sunscreen, Snack item





# Bicycle Safety and Injury Prevention

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## Anticipatory Set (Lead-In):

Read Sarah's Story to students (2 minutes). Ask them to listen carefully for anything Sarah and Danny might be doing incorrectly or any items or safety procedures they might be missing.

## Step-By-Step Procedures:

Discussion (5 minutes)

- Lead a brainstorming session with the class. Focus on the two following questions and list student ideas for the class to see.
  1. What safety items do you think Sarah should have with her for her ride to Tamika's house?
  2. What practices could Sarah use to make her ride safer?

Instruction and discussion (15 minutes)

- Utilizing the student-generated list for question one as much as possible, list (or circle) the following safety items for students to see:

Helmet  
Water and food  
Identification  
Sunscreen  
Medications

- Discuss the importance of each item and how each should be used correctly. Use pictures in Appendix I for reference.
- Utilizing the student list for question two as much as possible, discuss the following safety rules:
  1. Before riding a bicycle, perform a safety check to make sure the bicycle is in good working order. (Sarah didn't even check to see if her tires had air in them. What if her brakes didn't work?)

Performing an ABC Hand Check before each ride is essential:

A: check your tires for correct air pressure and inspect them for wear.  
B: check your brakes to see that they work effectively  
C: check your chain to make sure it's working properly  
Handlebars: make sure they're tight and are straight



# Bicycle Safety and Injury Prevention

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Get on your bike and ride around to make sure everything is working properly

2. Use a helmet that has been properly adjusted to fit your head; a helmet can only help you if it fits properly. A helmet that is not fit correctly can slide backward, forward, or sideways to expose part or all of the head. (Sarah's brother had changed the adjustment of the straps on Sarah's helmet.)
3. On a bicycle, the rule is one passenger per seat. A bike with one seat is made to accommodate only one rider. (Riding two-to-a-bike that has one seat is not okay.)
4. Sports equipment, school supplies and gear, bicycle locks and any other items carried by cyclists should be stowed appropriately in backpacks or bicycle bags (panniers), or in the case of locks, water bottles and some cycling tools, affixed to the bicycle with the appropriate hardware (like a water bottle cage that bolts to the bike frame). (Carrying a soccer ball under your arm is dangerous.)

**Closure (Reflect Anticipatory Set):** Ask students for do's and don'ts from today's lesson

**Independent Practice / Assessment Based On Objectives:**

Have each student complete the Sarah's Story worksheet (5-8 minutes). If time is short, students might be assigned to answer only some of the related questions, or students working in small groups might each be assigned to cover one question.

# Bicycle Safety and Injury Prevention

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## Sarah's Story

Sarah and her friend Tamika have planned to get together at 2 o'clock on a Saturday afternoon in September. Sarah will ride her bike to Tamika's house, which is about three miles away. Sarah finds her bicycle helmet and puts it on. She can tell that her brother Danny used her helmet, because the straps aren't adjusted correctly, but they are a pain to fix, so she buckles the helmet and decides that she will be fine. She thinks about how hot the sun is, and she's glad that her helmet is well ventilated. Then Sarah grabs her backpack, which contains some homework she and Tamika can do together, and heads for her bike. Suddenly, Sarah has an idea. Tamika lives near the soccer field, so maybe Sarah will bring along a soccer ball so that they can play. Sarah grabs her soccer ball, holds it under one arm, and jumps on her bike. As she's riding down the driveway, she remembers that she's left her inhaler at home, but she decides that she probably won't need it. Then her brother Danny runs out of the garage and yells for her, "Sarah! Can you give me a ride to the corner? I want to meet Jeff there."

"Okay," says Sarah. "Hop on. You can have the seat and I'll stand up and pedal...and you'll have to hold the soccer ball."

They're off!

# Bicycle Safety and Injury Prevention

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## Sarah's Story

Name \_\_\_\_\_

Sarah and her friend Tamika have planned to get together at 2 o'clock on a Saturday afternoon in September. Sarah will ride her bike to Tamika's house, which is about three miles away. Sarah finds her bicycle helmet and puts it on. She can tell that her brother Danny used her helmet, because the straps aren't adjusted correctly, but they are a pain to fix, so she buckles the helmet and decides that she will be fine. She thinks about how hot the sun is, and she's glad that her helmet is well ventilated. Then Sarah grabs her backpack, which contains some homework she and Tamika can do together, and heads for her bike. Suddenly, Sarah has an idea. Tamika lives near the soccer field, so maybe Sarah will bring along a soccer ball so that they can play. Sarah grabs her soccer ball, holds it under one arm, and jumps on her bike. As she's riding down the driveway, she remembers that she's left her inhaler at home, but she decides that she probably won't need it. Then her brother Danny runs out of the garage and yells for her, "Sarah! Can you give me a ride to the corner? I want to meet Jeff there."

"Okay," says Sarah. "Hop on. You can have the seat and I'll stand up and pedal...and you'll have to hold the soccer ball."

They're off!

\_\_\_\_\_

List five things that Sarah could have done better in order to have a safe ride:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Will an improperly adjusted helmet properly protect your head? Why or why not?

What parts of your bike should you check before each ride? Why?

What is the safest way to carry cargo (like baseball shoes or school supplies) on your bike?

How many people can safely ride on a bike that has one seat?

\_\_\_\_\_



# Bicycle Safety and Injury Prevention

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## Sarah's Story

### Answers

#### List five things that Sarah could have done better in order to have a safer ride:

1. Sarah should have checked her bike – air, brakes, chain/gears, handlebar
2. Sarah should have adjusted her helmet so it fit correctly
3. Sarah should have brought water for her ride, and maybe a snack
4. Sarah should have applied sunscreen – it's mid-day and the sun is strong
5. Sarah should not have left her inhaler at home – she might need it
6. Sarah should not carry a ball under her arm. She should put it in a bag or leave it at home.
7. Sarah should not allow her brother Danny to ride on her bike with her.

#### Will an improperly adjusted helmet properly protect your head? Why or why not?

A helmet must fit properly to ensure protection. If a helmet is loose or if the straps are incorrectly adjusted, the helmet can slide forward, backward, or sideways and expose part or all of the head to injury.

#### What parts of your bike should you check before each ride? Why?

Before each ride, you should check your tires for air pressure and wear, your brakes to make sure they're working properly, and your chain to make sure it's running smoothly. You should also check your handlebars for tightness and your whole bike for smooth performance at the beginning of your ride.

A check should be performed before each ride to ensure that all parts of the bicycle are functioning properly. A bike with problems may fail, causing injury.

#### What is the safest way to carry cargo (like baseball shoes or school supplies) on your bike?

Cargo items should be stowed in bags on the rider or mounted to the bicycle. Large items should not be carried at all. Carrying things in one hand or arm is dangerous.

#### How many people can safely ride on a bike that has one seat?

One. The rule is that the number of seats on a bike determines the number of riders.

# **LESSON B**

## **BICYCLE HANDLING SKILLS**



### Bicycle Handling Skills

Many on-bike drills can be administered to promote safety and good bicycle handling skills. The following teaching modules/drills can be performed in succession if time allows, or can be mixed and matched to fit the time constraints and/or size and skill range of the class.

In order to facilitate these drills safely, students must be properly fit to bicycles and helmets. Matching students to appropriate equipment and fine tuning their fit takes time, but once students are ready to ride, several drills can be performed in succession with use of a parking lot layout that need only be set up once.

If cycling equipment (bicycles and helmets) is unavailable, the health, safety and physical education standards for this lesson (involving balance, motor skill development, practice and skill development, etc.) may be met with other physical education or health lessons.

Students who do not know how to ride bicycles may require extra instruction and/or assistance. It is recommended that qualified adults be enlisted to address such situations and to instruct and practice with new bicycle riders in order to meet the needs and preserve the dignity of all students. The League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) lists cycling resources by ZIP code; contact a local cycling instructor, a bicycle shop or bicycle coalition to enlist volunteer help in your community. An after school or free-period bike club might also provide some basic instruction for new riders.

# Bicycle Handling Skills

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**Lesson Plan Title:** Bicycling Handling Skills

**Concept / Topic To Teach:** Safe bicycle handling skills

**Academic Standards Addressed:** 10.4.6.A-E  
(Health, Safety and Physical Education) 10.5.6 A, B, C, E

**Standards as they relate to bicycling:** Applying basic principles of balance and control  
Applying turning dynamics

**General Goal(s):** To teach students the basics of safe bicycling handling skills

**Specific Objectives:** Students will recognize the importance of a properly fit bicycle and helmet

Students will understand the purpose of each protective item and safety practice used when riding bicycles

Students will practice safe bicycling handling skills

**Time Required:** Dependent on how lesson is run

**Required Materials:** Bicycles

Helmets

Properly laid out parking lot drill site

Requires: -clean area 90-100 feet long and 20 feet wide  
- tape measure or measured lengths of string  
-chalk, tennis ball halves, or flat markers  
-cones to mark starting lines (optional)

**Anticipatory Set (Lead-In):** Discussion of the idea that when trying something new that requires physical coordination, practice is necessary to increase proficiency in the activity. Further, cyclists need to be predictable to motorists, pedestrians, and other cyclists in order to stay safe, which means riders should be steady on their bikes and able to stop and start expertly.

Use pictures in Appendix I for reference.



# Bicycle Handling Skills

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## Step-By-Step Procedures:

- Properly fit all students with bicycles and helmets
- Fully explain and demonstrate each drill to be executed by students
- Allow time for students to perform each drill, monitoring the logistics of the group(s)
- Assess student progress
- Use pictures in Appendix I for reference.

**Closure (Reflect Anticipatory Set):** Short discussion with students about the importance of the skills practiced. Why do you think these skills are important? Do you think mastery of these skills might make you a better cyclist? A better driver of a car someday?

**Assessment Based on Objectives:** Dependent upon instructor and whether practice or mastery of skills is the goal of the lesson(s).

To assess student proficiency with the goals specific to this lesson, you might:

- Have students ride an assigned course for assessment
- Have students demonstrate their knowledge of all protective items discussed
- Have students partner and properly fit helmets to each other

# Bicycle Handling Skills

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## Notes on the parking lot drill diagrams:

Diagrams are provided to give you an idea of how these drills may be laid out in a parking lot or on another paved surface. These drawings were excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

Tennis ball halves make excellent course markers, but damp sponges or chalk marks may be substituted. Markers should not create a hazard when run over and should be close enough to the ground not to impede pedaling. It is standard to place paired tennis ball halves ten inches apart (see diagrams).

The “Parking Lot” is a staging area where students may gather before completing each drill.

It is important to arrange the following drills so difficulty level increases as students advance. Beginning with the suggested drills for Oval 1 (see below), whether separately or combined, will give students practice with these basic skills before practicing the avoidance maneuvers suggested for Oval 2 (below).

As indicated by the provided diagrams, these drills may be set up individually. If time is limited, however, drills may be combined.

Suggested order and combinations of drills for use with two riding ovals:

### Oval 1

- Starting and Stopping
- Straight line
- Scan / Signal / Turn

These three drills can be combined so that one riding oval is used for all three. A single oval can accommodate Starting and Stopping on side one and Straight Line riding on side two. To add Scan/Signal/Turn, use one or both sides of the original oval. Once the riding pattern has been established, instructors can repeat particular drills for practice without changing the oval layout.

### Oval 2

- Quick Stop
- Avoidance Weave

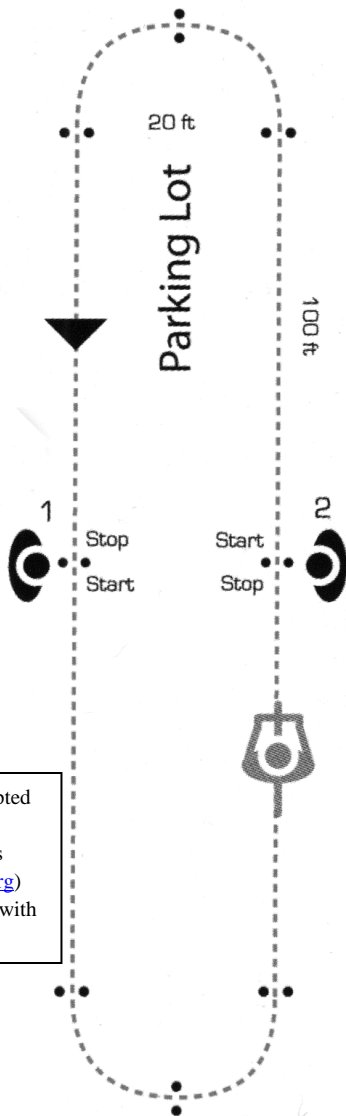
These three drills can be combined so that one riding oval is used for all three. A single oval can accommodate the Quick Stop drill on side one and the Avoidance Weave on side two. Students may be asked to do these drills separately (stopping and repositioning before practicing each maneuver), or in succession.

# Bicycle Handling Skills

## Starting/Stopping

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

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



This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

### Starting position:

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

### Stopping:

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

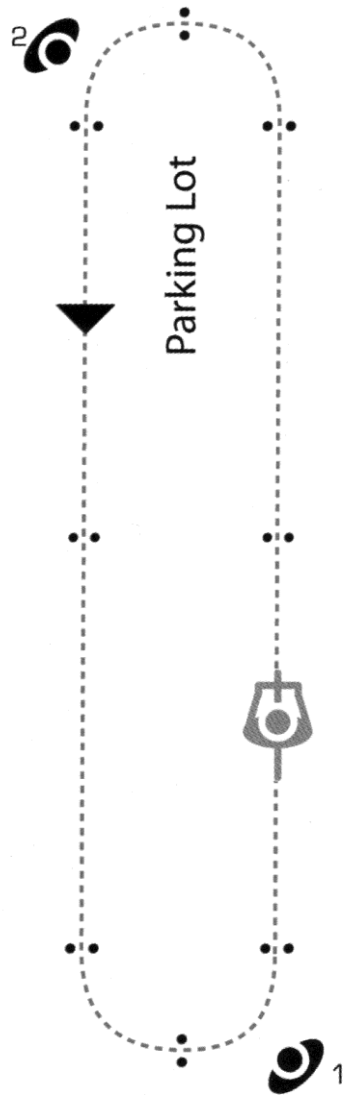
**Notes:** If students are riding geared bicycles, they should practice appropriate shifting along with proper starting and stopping. Gearing down before coming to a complete stop ensures that starting will be a smooth operation in a manageable gear. It is important for cyclists to be able to start smoothly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

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

# Bicycle Handling Skills

## Straight Line

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



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

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

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

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

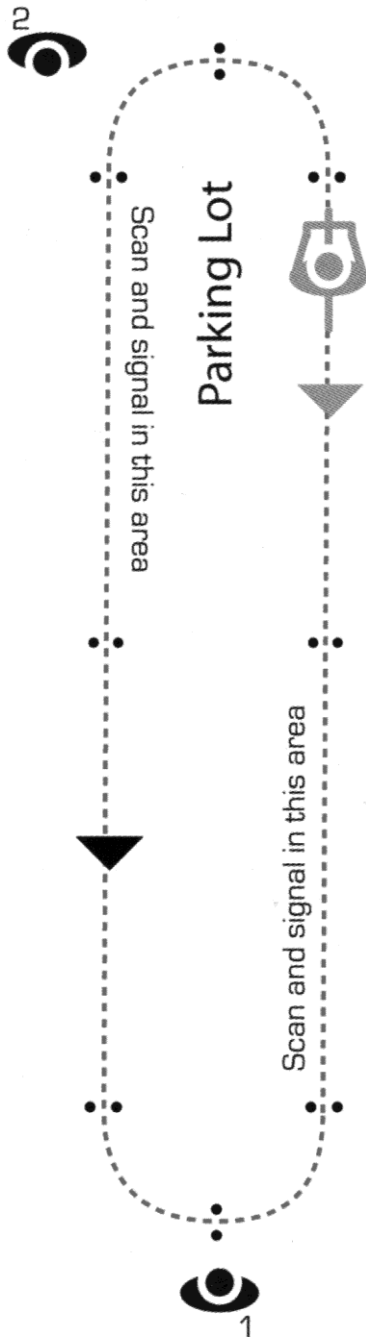
Students should be encouraged to slow down, downshift (if applicable), and lean into corners.

This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

# Bicycle Handling Skills

## Scan/Signal/Turn

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



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

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

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

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

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

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

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

This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

# Bicycle Handling Skills

## Quick Stop

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

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

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

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

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

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

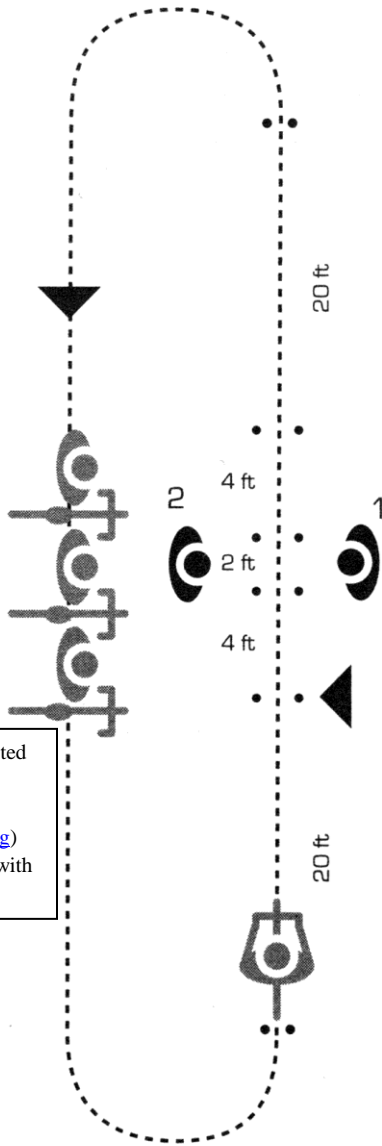
Instruct students to make three passes through the layout: one using the back brake alone, one using both brakes, and one using both brakes and a weight shift.

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

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

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

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



This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

# Bicycle Handling Skills

## Avoidance Weave

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

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

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

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

This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

# **LESSON C**

## **UNDERSTANDING THE CYCLING ENVIRONMENT**





### Understanding the Cycling Environment

This lesson covers material related to the handling skills lesson, and includes information about safe procedures for bicycle riding. The following teaching modules/drills can be performed in succession if time allows, or can be mixed and matched to fit the time constraints and/or size and skill range of the class.

If bicycles and helmets are not available for use, these drills may be performed on foot. Walking through the drills promotes awareness of safe bicycling practices, but all parts of this lesson are best suited for use with bicycles.

When using bicycling equipment, in order to facilitate these drills safely students must be properly fit to bicycles and helmets. Matching students to appropriate equipment and fine tuning their fit takes time, but once students are ready to ride, several drills can be performed in succession with use of a parking lot layout that need only be set up once. In addition, it may be helpful to record which students are paired with what equipment in order to save time for future lessons.

If cycling equipment (bicycles and helmets) is unavailable, the health, safety and physical education standards for this lesson (involving balance, motor skill development, practice and skill development, etc.) may be met with other physical education or health lessons.

Students who do not know how to ride bicycles may require extra instruction and/or assistance. It is recommended that qualified adults be enlisted to address such situations and to instruct and practice with new bicycle riders in order to meet the needs and preserve the dignity of all students. The League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) lists cycling resources by ZIP code; contact a local cycling instructor, a bicycle shop or bicycle coalition to enlist volunteer help in your community. An after school or free-period bike club might also provide some basic instruction for new riders.

**\*Note:** Children in Pennsylvania who are 12 years old and younger may legally ride on sidewalks in many areas and are expected to yield to pedestrians. Local laws may prevent the use of sidewalks by young bicyclists in “business districts” or similarly named settings. Check local laws in your area.

Sixth graders may or may not be allowed by their parents or guardians to ride their bicycles on roads. Encouraging children to obtain permission to ride on roadways is prudent to good bicycle safety for all. In addition, encouraging children to share bicycle handling and operating procedures with their parents/guardians reinforces safety lessons learned in school.

# Understanding the Cycling Environment

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**Lesson Plan Title:** Understanding the Cycling Environment

**Concept / Topic To Teach:** Safe bicycle handling and operating procedures

**Academic Standards Addressed:** 10.2.6.D  
(Health, Safety and Physical Education) 10.3.6 A-C, D  
10.5.6 A, B

**Standards as they relate to bicycling:** Applying basic principles of balance and control  
Applying turning dynamics  
Recognizing that a bicycle is a legal vehicle  
Understanding appropriate procedures and rules of the operating environment  
Assessing suitable operating environment in relation to skill level

**General Goal(s):** To teach students the basics of safe bicycle operations

**Specific Objectives:** Students will recognize the importance of a properly fit bicycle and helmet

Students will practice safe bicycling handling skills

Students will understand and practice appropriate procedures for riding on sidewalks and streets

**Time Required:** Dependent on how lesson is run

**Required Materials:** Bicycles

Helmets

Properly laid out parking lot drill site

Requires: -clean area of hard surface  
- tape measure  
-chalk, tennis ball halves, or flat markers  
- cones to represent stop signs

# Understanding the Cycling Environment

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**Anticipatory Set (Lead-In):** A bicycle is a legal vehicle: True or False?

True! In most states, including Pennsylvania, bicycles operating on the road are considered vehicles. To be safe and legal, bicyclists must follow traffic rules. Doing so makes cyclists predictable to motorists and keeps everyone safer.

Use pictures in Appendix I for reference.

## **Step-By-Step Procedures:**

- Properly fit all students with bicycles and helmets
- Fully explain and demonstrate each drill to be executed by students
- Allow time for students to perform each drill, monitoring the logistics of the group(s)
- Assess student progress
- Use pictures in Appendix I for reference.

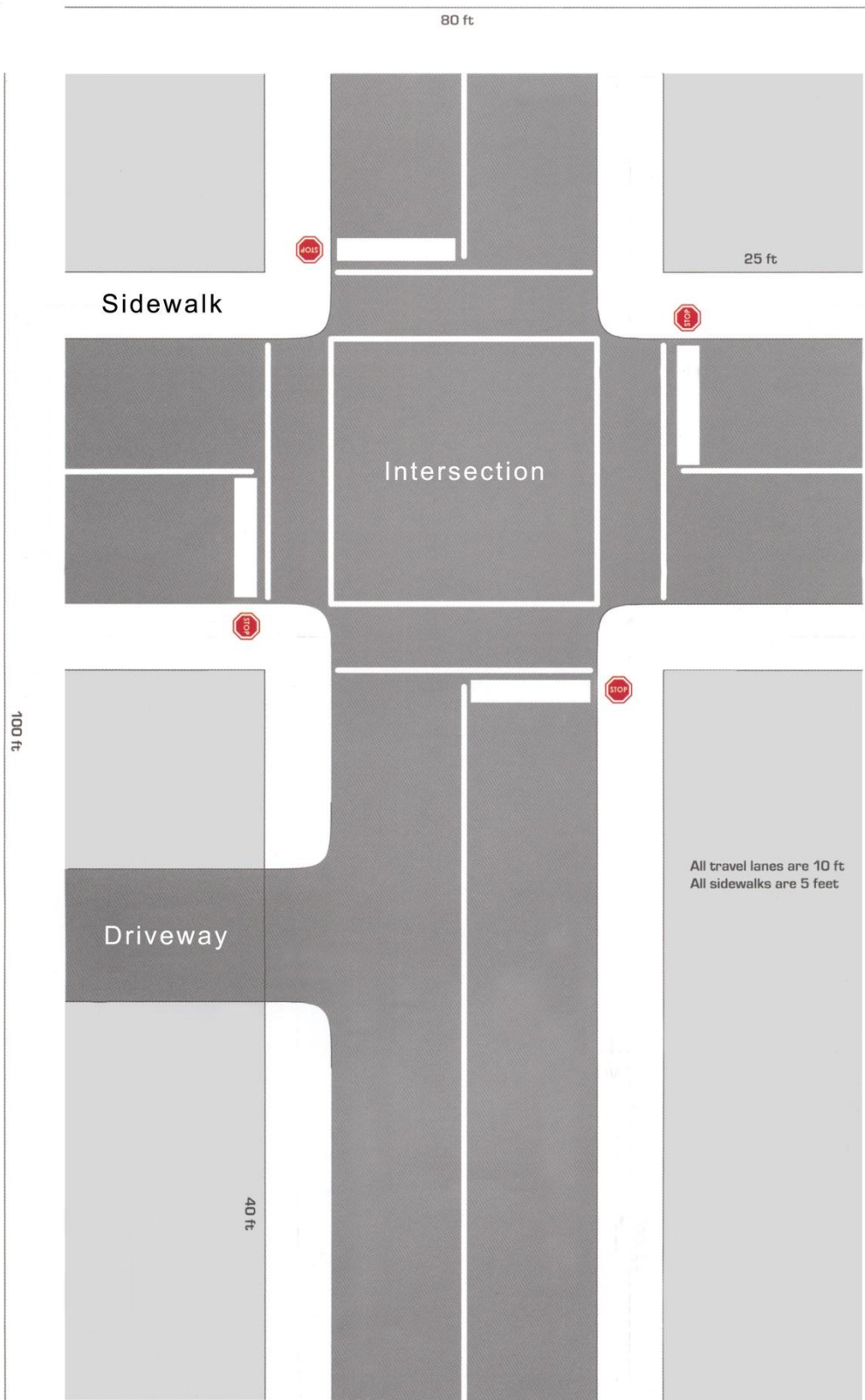
**Closure (Reflect Anticipatory Set):** Short discussion on parental permission for riding bicycles on roadways. Ask students if any of them have parental permission to ride on the road. For the good of all cyclists and motorists, encourage students to share information they've learned in this lesson with their parents.

**Assessment Based on Objectives:** Dependent upon instructor and whether practice or mastery of skills is the goal of the lesson(s).

To assess student proficiency with the goals specific to this lesson, you might:

- Have students ride an assigned course for assessment
- Have students demonstrate safe practices for riding on streets and sidewalks
- Have students partner and properly fit helmets to each other

# Understanding the Cycling Environment



This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

# Understanding the Cycling Environment

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## Notes on parking lot drill diagrams:

Diagrams are provided to give you an idea of how these drills may be laid out in a parking lot or on another paved surface. Exact replication of diagrams is not necessary – but care should be taken to include essential elements and to allow student groups room to practice comfortably.

Sidewalk chalk is excellent for the drawing of diagrams. Tennis ball halves make excellent course markers, but damp sponges or chalk marks may be substituted. Markers should not create a hazard when run over and should be close enough to the ground not to impede pedaling. It is standard to place paired tennis ball halves ten inches apart (see diagrams).

# Understanding the Cycling Environment

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## Signaling

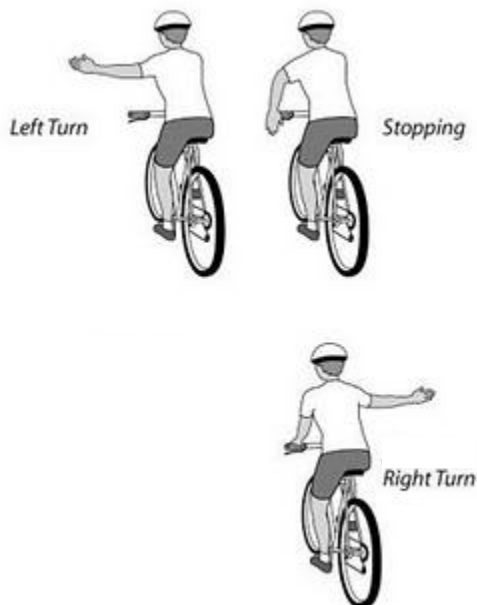
**Procedure:** Practice of signaling may be done without bicycles to promote student attention. Use pictures in Appendix I for reference.

Align students shoulder-to-shoulder so that they have personal space between them for arm extension.

Standing in front of students and facing the direction the students face, demonstrate the proper technique for signaling right and left turns and for stopping. To signal stopping, cyclists signal with an extended left arm, the upper portion of the arm parallel to the ground and the lower arm perpendicular to the ground. Practice signaling for a stop, encouraging students to return both hands to the bicycle handlebar in order to properly apply the brakes.

Discuss and practice scanning (over the shoulder) and signaling in sequence, and address the idea of keeping both hands on the bicycle handlebars when actually making the turn. When riding in traffic on roadways, cyclists should scan behind them to determine traffic flow and to indicate that they will be soon signaling. Cyclists should then signal appropriately for about two seconds, scan once more for safety, and then perform the indicated maneuver.

Practice scanning, signaling, and scanning again for left and right turns. Repeat this practice on bicycles, if available, with use of the intersection layout.



This drawing excerpted from the League of American Bicyclists ([www.bikeleague.org](http://www.bikeleague.org)) education curricula with permission.

# Understanding the Cycling Environment

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## **Street Crossings**

Use the intersection layout to demonstrate using crosswalks at intersections to cross from one sidewalk to another.

### **Procedure:**

Explain to students that when using sidewalks for bicycle travel, cyclists are expected to cross intersections by walking within crosswalks. This is a predictability issue: people using crosswalks should act as pedestrians.

Students should practice traveling on the sidewalk and stopping at the intersection, dismounting their bicycles, and crossing in the crosswalk on foot. Students may mount their bicycles when once again on the sidewalk at the far side of the intersection.

This may be done with students in two groups so that two crosswalks are being crossed simultaneously.

## **Entering Roadways from Driveways**

Use the intersection layout to demonstrate the procedure for entering the roadway from a driveway.

### **Procedure:**

Have students ride one by one to the edge of the driveway, look to the left and then to the right, look to the left once more, and signal and turn right to ride along the right side of the roadway.

Students should then return to the end of the line to repeat the procedure.

Once students have had practice exiting the driveway to the right, have them practice turning left from the driveway, crossing the street, and riding along the right side of the roadway.

## **Crossing Intersections**

This drill gives students practice stopping at intersections, making right and left turns at intersections, and proceeding straight through intersections.

**Procedure:** Explain and demonstrate the procedure for this drill, which entails riding continually and not pausing between parts 1, 2, and 3:

# Understanding the Cycling Environment

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## 1. Making a right turn:

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

## 2. Riding straight through:

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

## 3. Making a left turn

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

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



# **LESSON D**

## **CYCLING AND YOUR HEALTH**



## Cycling and Your Health

**Lesson Plan Title:** Cycling and Your Health

**Concept / Topic to Teach:** Identifying the health benefits of cycling

**Academic Standards Addressed:** 10.3.6 D  
(Health, Safety and Physical Education) 10.4.6 A, B, C  
10.5.6 C, D  
10.1.6 C, E  
10.2.6 D

**Standards as they relate to bicycling:** Cycling as a regular form of physical activity  
Identifying the health benefits of cycling

**General Goal(s):** To teach students about cycling as healthy form of regular exercise and to teach students to identify and understand the health benefits of cycling.

**Specific Objectives:** Students will demonstrate understanding of the health benefits of cycling  
  
Students will generate an informative “advertisement” to promote the health benefits of cycling.

**Required Materials:** Handouts: Informational handout: “The Health Benefits of Cycling”  
Assignment and assessment rubric  
Paper and markers for groups making posters

**Anticipatory Set (Lead-In):** Lead class in brainstorming a list of the health benefits of cycling

Possible student responses:

Cycling helps your heart  
It’s good for your leg muscles  
It’s a good way to get the exercise you need every day



# Cycling and Your Health

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## Step-By-Step Procedures:

- Distribute and discuss the handout “The Health Benefits of Cycling”
- Divide students into small groups and distribute the Assignment and Assessment rubric handout
- Discuss assignment guidelines as explained on the assignment handout, and explain that advertisements will be assessed according to the rubric
- Highlight assignment directions for students so that it is clear that each group is responsible for advertising “three or more” of the health benefits of cycling and not for advertising every item discussed on the handout.
- Carry out plan for independent practice (below)
- Collect assignment/rubric sheets from class groups in order to assess work as it is performed
- Groups share their results with the class
- Share completed rubrics with students (can take place at a later time)

**Plan for Independent Practice:** Allow student groups to work to generate their advertisements

**Closure (Reflect Anticipatory Set):** Debrief the activity with students. How did it go? Did we expand upon our original brainstorm? Did you learn anything you hadn’t thought of before?

**Assessment Based On Objectives:** As outlined in the rubric

## The Health Benefits of Cycling

Regular physical activity can improve your health and help prevent health problems, and cycling is a physical activity with benefits for the entire human body. Done on a regular basis, cycling can improve your fitness, help you maintain a healthy weight, and aid your overall wellness.

How cycling helps you stay healthy:

### Muscles

When you enjoy cycling on a regular basis you build muscle, especially in your legs, rear end, back, and upper arms. Strong muscles are good for your overall health and promote the good health of your bones and joints.

### Heart

Your heart's a muscle! Aerobic exercise (that works the large muscles in your arms and legs) helps your heart by making it work more efficiently during exercise and rest – so it can beat for a long time.

### Joints

Cycling is a low-impact activity, so it helps build joint strength and function and does not cause the cartilage in your joints to break down, which is a common cause of pain and arthritis.

### Weight Control

Regular physical activity, like cycling, can help lose excess fat or maintain a reasonable weight.

### Mental Health

Exercise, and particularly outdoor exercise, can help reduce feelings of depression and anxiety, improves mood and promotes a sense of well being.

### Balance and coordination

The more you practice these skills by doing exercise like riding a bike, the better your balance and coordination become.

### Stamina

Cycling regularly improves cardiovascular endurance and builds stamina. Stamina allows you to feel more energetic throughout the day.

### Prevention against disease

Active people are at lower risk for heart disease, stroke, cancers like colon cancer, high blood pressure, and type 2 diabetes. People who have or have had some of these health issues can also benefit from physical activity.

# Cycling and Your Health

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## Assignment Assessment Rubric

Members of Group:

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### Assignment

Your job is to work with the students in your group to produce a short advertisement to present some of the health benefits of cycling in an entertaining way. Remember that **the goal here is to share information**.

**Create an ad** – it may be a poster, a skit, or an infomercial – **to present three or more of the health benefits of cycling**.

Work within the **timeframe** provided (which means work quickly!) to create your ad. Rough drafts are the expected result --- we're not aiming for perfection in presentations. Focus and plan well and present your results.

### Rubric for assessment

#### Cycling and Your Health

Excellent	Satisfactory	Poor
Spectacularly advertised three or more of the health benefits of cycling	Adequately advertised three of the health benefits of cycling	Did not effectively advertise three of the health benefits of cycling
Worked effectively and efficiently within the time given	Finished on time – adequately organized and focused	Did not work effectively within the time given
Presented in a clear, organized way  very effective and entertaining	Presented all material satisfactorily  Could have been more entertaining/effective	Presentation lacked organization  Presentation was not effective or entertaining
Comments:		



# LESSON E

## CYCLING IN YOUR COMMUNITY



# Cycling in Your Community

**Lesson Plan Title:** Cycling in Your Community

**Concept / Topic To Teach:** Suitable places to ride and how to find them

**Academic Standards Addressed:** 10.2.6.D  
(Health, Safety and Physical Education) 10.3.6 A, D  
10.4.6 A, E  
10.5.6 F

**Standards as they relate to bicycling:** Identifying bike paths and appropriate areas to ride  
Identifying local bicycling resources  
Planning an outing to an appropriate area

**General Goal(s):** To teach students the basics of safe bicycling practices with use of facilities and resources in their own communities

**Specific Objectives:** Students will recognize that there are appropriate areas for children and families to ride bicycles

Students will become familiar with local cycling resources

**Time Required:** Dependent on how lesson is run

**Required Materials:** Slide show of bicycling facilities

**Anticipatory Set (Lead-In):** Survey of student knowledge on local cycling facilities and resources: Who has been to a local bicycle shop? Is there a local bicycle shop? Is there a local Rails-to-Trails facility? Are there bike paths in our municipality? Do adults in our area commute to work by bicycle? Is there bicycle access in the nearest state park? Does anyone ride his/her bike to school?

### Step-By-Step Procedures:

Show students the Bicycling Facilities slide show. Explain each slide and encourage discussion. (Information provided, page 5.)

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Options for expansion of the lesson:

- Invite a local city official to speak on the area's bike facilities and commuting by bicycle in your community
- Contact a local bicycle coalition and invite a guest speaker
- Visit a local bicycle shop or invite an owner or mechanic to speak
- Contact a League Cycling Instructor through the League of American Bicyclists to help plan a safe bicycle route and an outing for the class
- As a class, plan a route from your school to a local park or quiet neighborhood
- If feasible, assign small groups of students to design and map safe bicycle routes to school
- Plan a "Ride to School" day and organize teacher-led "bike busses" that students can join to safely ride to school
- Visit a local Rails-to-Trails facility and meet with a Rails-to-Trails officer
- Visit a local State Park with bicycling facilities
- Using available Rails-to-Trails and State Park information, assign students to report on facilities available for bicyclists in Pennsylvania

**Closure (Reflect Anticipatory Set):** Dependent on lesson

**Assessment Based on Objectives:** Dependent upon lesson





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Communities and municipalities differ greatly in their available bicycle resources. The following list is provided to aid in the location of facilities and expertise in the field of cycling. In addition to the resources listed below, you may find local bicycle shops with a quick internet search for retailers and/or repair shops near your location.

League of American Bicyclists

[www.bikeleague.org](http://www.bikeleague.org)

right click on: "Cycling in your area"

Enter your ZIP code and select a radius in miles

For instance, if you enter 16915 and 50 miles, you'll find bicycle shops, advocacy organizations, bike clubs, and cycling instructors.

If you live in a more urban area you'll also find groups rides, lectures on bicycle-related topics, etc.

Rails-to-Trails Conservancy

<http://www.railstotrails.org/index.html>

Books and Pennsylvania Rail-Trail Guides available

Trails by state:

[www.TrailLink.com](http://www.TrailLink.com)

Pennsylvania has 144 trails covering 1,655 miles

Pennsylvania State Parks

[www.dcnr.state.pa.us/stateparks/](http://www.dcnr.state.pa.us/stateparks/)

Many have bicycle paths and trails with a variety of lengths, terrain, paving, or aggregate surfaces

PENNDOT resources:

[www.dot.state.pa.us/bike/web/links.htm](http://www.dot.state.pa.us/bike/web/links.htm)

Links to publications such as The Bicycling Directory of Pennsylvania

The Pennsylvania Walks and Bikes organization

<http://www.pawalksandbikes.org/>

Adventure Cycling Association

[www.adventurecycling.org](http://www.adventurecycling.org)

The Bicycle Access Council

<http://www.bicycleaccess-pa.org>

Harrisburg Bicycle Club

[www.harrisburgbicycleclub.org](http://www.harrisburgbicycleclub.org)



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Bicycle Coalition of Greater Philadelphia:

<http://www.bicyclecoalition.org/>

Bike Pittsburgh:

<http://bike-pgh.org>

Centre Region Bicycle Coalition:

[www.centrebike.org](http://www.centrebike.org)

Allentown/Bethlehem area Bicycle Coalition:

<http://car-free.org/wic/cat.html>

Wilkes Barre area bicycle lane advocacy group:

<http://car-free.org/wic/cat.html>

Lebanon Valley Bicycle Coalition:

<http://lebanonvalleybicycleclub.net/>



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## Cycling in Your Community Slide Show

### 1. Title Slide

2. A traffic-clogged roadway. This is not a safe place to ride a bicycle, obviously, because there is just too much traffic. Roadways, however, are the best place for bikes, as bicycles are considered vehicles in Pennsylvania and most other states. Cyclists must drive safely and predictably on roadways, as must motor vehicles.

3. Bike trail. An excellent place for bike riding, but not everyone has easy access to bike trails like this. Luckily, Pennsylvania has many of them spread all over the state. There are rules to riding on trails like this: stay right, yield to slower traffic, pass others on the left, and signal when you plan to stop. On some trails, bikes are required to yield to horses!

4. Designated bike path with marked lanes. This is an excellent facility with clearly marked areas of use for cyclists and walkers. Bike paths like this can be dangerous when they get crowded with walkers, cyclists, joggers, strollers, etc. Staying right, passing on the left, and signaling are essential.

5. A Rails-to-Trails path on an old trestle. Pennsylvania has many of these flat old railroad beds to ride.

6. Marked bike lane. This designated bike lane is on a regular road, but it's designed to keep cyclists visible and safely away from both moving traffic and parked cars.

7. A Sharrow. A Sharrow is a "row shared by bikes and cars" and is marked with the symbol you see here. It's a clearly designated space for cars AND bicyclists, and allows bicyclists the freedom to ride safely away from parked cars and to ride in the center of the lane.

8. Riding on the sidewalk is fine if you're twelve or under and if your community allows it. (This little girl's grownup riding partner should probably be riding on the street!)

9. Some places to not allow bicycles on the sidewalks. Some places only allow bicycles on sidewalks away from downtown areas.

10. A bike bus! A bike bus is a group of people dedicated to commuting by bike and to allowing others to join them. They are very visible as a group, and ride in a very orderly manner. If there was a bike bus to your school, you could jump in and ride to school whenever you felt like it. There would always be adult escorts to make sure you were safe. This bike bus is in Sydney, Australia (but there are some in the United States).

# APPENDIX I

## TEACHER USE



# Appendix I

The following images are provided for teachers. These images illustrate important concepts and procedures necessary for the teaching of the lessons for Handling Skills, Understanding the Cycling Environment, and Bicycle Injury and Prevention.

### 1. Stand-over height

The rider of an appropriately sized bicycle can stand, straddling the bicycle with both feet flat on the ground, and can lift the handlebars 1-2 inches before hitting his or her pelvic bone. In addition, the rider can comfortably reach the handlebars when he is seated. When matching students with bicycles, it is important that these rules be followed to ensure student safety.



### 2. Seat height

Bicycle seat height is adjustable. Ideally, a rider will show a slight bend in the knee when her foot is at the very bottom of the pedal stroke. To adjust seat height for a rider, the bike should be held in a stationary position while the rider sits on the saddle and places her feet on the pedals. As the rider pedals backwards (so that the bike remains stationary), watch one foot as it reaches the bottom of the pedal stroke. Adjust seat height accordingly.



### 3. Helmet fit (front view)

A properly fit bicycle helmet sits level on the wearer's head. The front edge of the helmet is slightly higher than the wearer's eyebrows and the wearer should be able to see the brim of the helmet when he glances upwards. Helmets worn tilted up to expose the forehead, a common mistake, will not protect the wearer's head in the event of a crash.

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The chin strap is securely buckled so that two fingers (and no more) can be placed between the strap and the rider's chin. The rider should be able to open her mouth and should feel comfortable when the strap is buckled.

Even when un-buckled, a properly fit helmet will not move when the wearer shakes his head from side to side.



#### 4. Helmet fit (side view)

A properly fit bicycle helmet sits level on the wearer's head from any view! Notice that the side straps are adjusted so that the toggles sit just below the wearer's ears and that the straps create a tight V-shape.



#### 5. The "Power Pedal" position shows the proper position of the rider when preparing to begin riding.

The rider stands over the frame of the bicycle ahead of the saddle, and with one foot firmly on the ground. The other foot rests at a "2 o'clock" position on a raised pedal. To begin, the rider pushes down on the power foot. As the bike begins to roll forward, the second foot is placed on its pedal and the rider mounts the saddle.

Note that bicycles with gears should be shifted into a low, or easy-to-pedal gear, so that pedaling can begin smoothly and with little effort.

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### 6. Signaling

Practicing signaling first with riders standing still...



and later with riders actively riding.



### 7. Stopping effectively requires practice.

Good stopping practice requires braking with both hands, if using hand brakes, and a shift of the rider's weight so that her center of gravity lends weight to the rear wheel of the bike.

When anticipating a stop while riding a geared bicycle, the rider should shift into a low, easy-to-pedal, gear in order to prepare for starting to ride again after stopping.



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### 8. ABC Hand Check

A is for air. Check tires for air pressure by squeezing each tire to see that it has adequate air. Bicycle tires are stamped with ranges for acceptable air pressure, and bicycle pumps come with gauges to measure air pressure, but a quick hand check before each ride will help riders determine if tire pressure is exceptionally low.



Tire stamps are often tricky to find (here, below the rider's thumb), as they are often stamped directly into the rubber of the tire and do not contrast in color.



While checking for air pressure, riders should also inspect their tires for damage and wear.

B is for brakes. Check brakes by squeezing hand brakes to make sure they engage easily but firmly and coaster brakes by pedaling backwards. Brakes should be tested before each ride.



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C is for chain. Run the chain by moving the pedals backwards (on a geared bike). Inspect the chain to see that it runs smoothly. If using a geared bike, shift gears to ensure that the entire mechanism (drive train) runs smoothly.



Hand is for handlebars. Straddle the front wheel of the bike and attempt to turn the handlebars. Bars should not move without the wheel also moving.



The ABC Hand Check also includes a quick check of the entire bicycle, which is what riders should do as they begin each ride. In the first few yards of every ride, brakes and gears should be tested and the rider should be aware of anything that doesn't feel smooth and normal.