



# WHEELS IN MOTION



Fun  
Activities  
for Youth  
Cyclists

Name \_\_\_\_\_

County \_\_\_\_\_

Bicycle

2



# NOTE TO THE BICYCLE PROJECT HELPER

You are lucky! You have been asked to be a project helper for a young bicycle enthusiast. You will be the one who helps this person to learn, grow and—equally important—have fun. Not only will you be teaching a young person independence through bicycling, you'll also help him or her develop important life skills that include decision-making, personal safety and marketable skills.

## YOUR ROLE AS HELPER

- Review the material in this youth guide and the Bicycle Helper's Guide.
- Help youth better understand themselves including their strengths and weaknesses.
- Provide support for youth to achieve the learner outcomes for the Bicycle Adventures series including the abilities to demonstrate safe cycling skills; repair and maintain a bicycle; plan and participate in cycling activities and events; and practice the life skills of decision making, leadership, planning and organizing, and communications.
- Discuss the review questions after each activity, listening to and encouraging as the youth to give their own answers and draw their own conclusions.
- Utilize the experiential methodology throughout this curriculum.

## BICYCLE ADVENTURES SERIES

1 – <i>Bicycling for Fun</i>	BU-08334
2 – <i>Wheels In Motion</i>	BU-08335
<i>Bicycle Helper's Guide</i>	BU-08336
<i>Don't Get Stuck: Fix It Video</i>	VH-07507
<i>Don't Get Stuck: Fix It DVD</i>	DV-08399

*Bicycle 2, Wheels In Motion* is designed for grades 6–8. The guides may be used by youth in any grade based on their project skills and experience. All activities include a description of the skills to be practiced, discussion questions, suggestions for additional activities and basic information to get started. The Success Indicator listed for each activity is an excellent way to evaluate the youth's progress. Bicycle 1 engages youth in activities that help them ride safely, use the proper equipment and map safe bike trips. In Bicycle 2 youth shop for a bike, perform specialized repairs and maintenance activities and get involved in their communities advocating for bicycling.

Each of the guides includes an Achievement Program to encourage youth to learn more about this project while developing important life skills. BEFORE and AFTER—“What Do You Know?” on page 3 is a quick and fun way for youth to assess their knowledge before and after they complete the activities. In the *Helper's Guide* you will find another evaluation piece titled “Evaluating the Impact.” Use this to help you determine the general expertise in your group before and after completing each level.

## BICYCLE HELPER'S GUIDE

The *Helper's Guide* is intended primarily for the group project helper. Group activities are featured which can be adapted to family meetings, the classroom, after school, home school and 4-H bicycle project clubs.

## GROUP PROJECT MEETINGS

When several youth are participating in the project, monthly (or more frequent) meetings add greatly to their experiences. The project helper or club leader plans and conducts these meetings. Youth share their progress and learning, take part in group activities from the *Helper's Guide* and prepare for the next set of independent activities they will do before the next meeting.

## LEARNING EXPERIENTIALLY

Experiential learning distinguishes 4-H youth development education from many formal education methods. As shown in the Experiential Learning Model, youth are first provided an opportunity to learn before being told or shown how and then share what they did, consider what was important about what they did, generalize the experience to their own lives and finally apply what they learned to a new situation. Your role as helper is very important as you discuss the questions in the Backtrack section of each activity with the youth as they complete the activities.



Explore more at

[www.4-hcurriculum.org](http://www.4-hcurriculum.org)

National 4-H Curriculum



For more on bicycling, look for  
the other guides in this set.

Bicycle 1

**BICYCLING FOR FUN**



BU-08334

**Chapter 1** First Gear  
Body Protection  
Protect Your Noggin  
Getting to Know Your Bike  
Your First Bike!  
Just the Right Fit  
Finding Your Groove  
ABC Bike Check

**Chapter 2** Road Rules  
On Your Bike  
Braking and Stopping  
Is the Coast Clear?  
Sign Language  
Scanning the Area  
Taking Turns

**Chapter 3** On Your Way  
Be Road Smart  
How Do I Get There?

**BICYCLE HELPER'S GUIDE**



BU-08336

**Chapter 1** Making Preparations  
Planning the Bike Project Year  
Journaling Your Adventure  
Bike Shop Scavenger Hunt

**Chapter 2** Riding a Bike  
Stop! Look! Listen!  
Organizing a Group Ride  
Set the Pace  
Single Track Fun

**Chapter 3** Bicycle Skill Activities  
Fitting a Helmet  
Identifying Bike Parts  
Conducting a Pre-ride Check  
Changing a Tire  
Shifting Gears  
Adjusting Brakes  
Bicycle Skillathon Fun  
It's Bike Rodeo Time

**Chapter 4** Playing Bicycle Games  
Playing Bicycle Pyramid  
Cycling Quiz Bowl Excitement  
Bicycle Bingo Bonanza

**Video/DVD:**

**DON'T GET STUCK: FIX IT**

Fitting a Helmet  
Fitting the Bike  
Adjusting the Seat  
Adjusting the Handlebars  
Adjusting the Brake Levers  
Preventive Maintenance  
Inflating Tires  
Fixing a Flat  
Adjusting Brakes—Cables and Pads  
Adjusting the Headset  
Repairs Best Left to a Bike Shop



VH-07507

DV-08399

# WHEELS IN MOTION

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## ACKNOWLEDGMENTS

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# WELCOME TO *WHEELS IN MOTION*

## *Welcome back!*

By now, you're "ready, set and going" after finishing Level 1 of Bicycle Adventures. You've gained control of your bike and learned how to navigate in traffic, make choices about clothing and protective gear and do some adjustments and safety checks.

The bicycle you ride now is probably more complicated than ones you've ridden before. You probably want to learn how to do specialized repairs and maintenance. In this guide, you'll learn advanced maneuvers such as emergency handling, efficient gear shifting and how to ride in adverse conditions. You'll also discover how you can advocate for bicycle-friendly communities and turn your cycling knowledge into a career.

Many essential techniques for cycling in and with traffic are difficult to learn by reading a book. If you are interested in becoming more proficient as a cyclist, ask your local bike shop or cycling club about classes offered in your community. Several national bicycle organizations including the League of American Bicyclists (LAB) offer trainings and other resources.

## Project Guidelines

1. Select a project helper.
2. Do a minimum of seven activities in this guide each year and complete the Bicycle Achievement Program for this guide within two years.
3. Complete the Project Goals, Before and After, and Project Highlights sections of this guide.
4. Practice and develop the life skills of relating to others, making decisions, personal safety and planning and organizing.
5. Increase your cycling knowledge and skills.

## The Activities in This Guide

Each activity includes several parts to help you not only do the activity but to discover more about the topic.

- **Skills** — These are both bicycle skills and life skills you will practice.
- **Success Indicators** — If you have accomplished this you have completed the activity. If not, don't worry. Just keep practicing until you can.
- **Tool Kit** — These are things you and your helper will need to do the activity.
- **Hop On!** — This is the "do" part of each activity. Be safe and have fun!
- **Backtrack** — Write short answers on the page to the questions and then get together with your helper to discuss each question.
- **Pit Stop** — Here you'll discover cool or important things you may not have known about bicycles or cycling.
- **Pedaling Harder** — Here are ways you can learn more and do more. When you finish one of these, don't forget to record it on your achievement program page.

## Your Project Helper

Have you selected your project helper? This person may be a parent, an older sibling, another relative, a neighbor, or someone who just likes kids and is interested in biking. The choice is yours. As you do the activities you'll discuss with your helper what you did and the questions in the Backtrack section of each activity. Sometimes your helper will work with you to identify resources, including people, organizations, events, web sites, magazines and books necessary to complete an activity. Once you have successfully completed each activity, your helper will date and initial your Achievement Program.

My Project Helper \_\_\_\_\_

E-mail Address \_\_\_\_\_

# PLANNING GUIDE



## MY PROJECT GOALS

Think of some challenging things you would like to do in this project or learn about bicycles and bicycling. These are your project goals. Write them below before you begin doing the activities.

What I want to do and learn in this project: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

I plan to complete *Wheels In Motion* by \_\_\_\_\_

## PROJECT HIGHLIGHTS

Date and list the exciting things you do and learn.

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

## BEFORE AND AFTER WHAT DO YOU KNOW?

Here is a great way to see if you learn something new and develop important skills in this project. **BEFORE** you start doing the activities in this guide indicate what you know how to do **NOW**. Then when you complete the *Wheels In Motion* Achievement Program record what you know **AFTER**. You may be surprised to see what you learned! Share the results with your helper.

Circle **1** (to a great extent), **2** (somewhat) or **3** (not at all). Begin each statement with the words "I know how to..."

<i>I know how to...</i>	Before	After
Choose a bike according to essential features and price	1 2 3	1 2 3
Compare tire pressure, valve type and tread	1 2 3	1 2 3
Pinpoint the cause and fix a flat tire	1 2 3	1 2 3
Remove, clean, lubricate and replace a bike chain	1 2 3	1 2 3
Replace brake cables	1 2 3	1 2 3
Perform the rock dodge maneuver	1 2 3	1 2 3
Plot and follow a bike route	1 2 3	1 2 3
Ride safely in traffic	1 2 3	1 2 3
Demonstrate how to shift through gears	1 2 3	1 2 3
Make emergency turns safely	1 2 3	1 2 3
Demonstrate how to shift gears efficiently	1 2 3	1 2 3
Ride safely at night	1 2 3	1 2 3
Plan a menu for an all-day bike ride	1 2 3	1 2 3
Identify bicycle related jobs and careers	1 2 3	1 2 3
Set goals and plan community action	1 2 3	1 2 3



Place a photo of you and your bike in this space.

# WHEELS IN MOTION ACHIEVEMENT PROGRAM

## Guidelines

- Do at least five regular activities and two Pedaling Harder activities each year.
- Complete 10 regular activities and four Pedaling Harder activities to complete the *Wheels In Motion* Achievement Program.
- Have your bicycle helper date and initial this log as you complete the activities.



## PEDALING HARDER

Select and do any of the Pedaling Harder activities in *Wheels In Motion* or make up your own. Record the page and number of each one you complete and have your helper initial each one.

Page	Number	Date Completed	Helper's Initials

Write your own activity here.

Date \_\_\_\_\_ Helper's Initials \_\_\_\_\_

Write your own activity here.

Date \_\_\_\_\_ Helper's Initials \_\_\_\_\_

Write your own activity here.

Date \_\_\_\_\_ Helper's Initials \_\_\_\_\_

## WHEELS IN MOTION ACTIVITIES

	Date Completed	Helper's Initials
Comparison Shopping		
Pressure Checkup		
Patch It		
Chain Overhaul		
Putting on the Brakes		
Know Your Terrain		
X Marks the Spot		
Traffic Manners		
Shifting Gears		
Emergency Turns		
Shifty Maneuvers		
Dark and Stormy Riding		
Fueling the Engine		
Career Cyclist		
Making a Difference		



Explore more at  
[www.4-hcurriculum.org](http://www.4-hcurriculum.org)  
National 4-H Curriculum



# WHEELS IN MOTION

## Achievement Program Certificate

I certify that

---

has successfully completed  
the requirements of  
*Bicycle 2 Wheels In Motion* of the  
Bicycle Adventures Achievement Program

Bicycle Helper \_\_\_\_\_

Date \_\_\_\_\_

A bicycle photo of me  
and my project helper

**Bicycle Skill:** Comparing bike features

**Life Skill:** Decision Making

**Educational Standard:** [CFR 2.1] Demonstrates management of resources through comparison shopping.

**Success Indicator:** Chooses a bike according to essential features and price

# COMPARISON SHOPPING

What kind of bicycling do you want to do? Is it track racing, road racing, touring, commuting, all-terrain or mountain biking, freestyling, hybrid or BMXing? Is the bike you now have designed for what you want to do? In this activity you will have an opportunity to comparison shop for the bike of your dreams (well at least one that will meet your needs and is in your price range). Go to biking events or visit sites on the Internet, talk to people in the areas of bicycling that you are considering and look for bicycle magazines that may assist you.



*I can afford this bike.*



**Road Bike**

**Mountain Bike**



List the features, gears and tools you need for the kind of bicycle cycling you like to do or want to do in the future. List the features in order from the most to the least important. Record your findings as you examine at least four different bike models. Finally select one bike and give your reasons for selecting that bike over the other three.



Type of Bike: _____					The bike I would purchase and why: _____ _____ _____ _____ _____
Bike	Desired Features	Gears	Tools	Price	
1					
2					
3					
4					
5					



# BACKTRACK

## GET ROLLING (Share)

- How did it feel to have so many choices in bicycle types, features, tools and accessories?
- What did you do that most helped you choose?
- Why might a used bike be a possibility?

## CRUISING (Process)

- How did comparison shopping change your ideas about what you wanted in a bicycle?
  - How did cost influence your decision?
- 
- 
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## SPINNING (Generalize)

- What other choices do you have to make that you might approach in the same way?
- 
- 
- 
- 

## FINAL LAP (Apply)

- What are the next steps (e.g., saving more money, shopping for used bikes, talking with bicycle experts) you will take to get the bicycle you want?
- 
- 
- 
- 



## BIKES AND BICYCLE ACCESSORIES

Bicycle features include aerodynamics, load/pannier options, brake differences, tire differences and frame geometry.

### TYPES OF BICYCLES

**Track bicycles** are restricted to racetracks called velodromes and have no gears or brakes; **racing bikes** are lightweight with very narrow tires to lessen drag; **touring bikes** are built for long-distance riding on the road; the **commuting bike** has a wider tire, making it good for in-town travel; the **all-terrain or mountain bike** is designed for use off the road on trails; the **hybrid** combines features of the mountain and touring bikes; the **BMX** is off-road and used for competitions; and the **freestyle** is used for tricks and competitions on pavement and ramps.



- track bicycle
- racing bicycle
- touring bicycle
- commuting bicycle
- all-terrain bicycle
- mountain bicycle
- hybrid bicycle
- BMX bicycle
- freestyle bicycle



## PEDALING HARDER

1. Make a comparison chart for all the accessories and tools you need for the type of bicycling you do.
2. Comparison shop in different kinds of stores (on the Internet, bicycle shops, department stores, discount stores) for the tools and accessories that are necessary.
3. Comparison shop for the tools and accessories that are optional but would be fun to own.

# PRESSURE CHECKUP

**Bicycle Skill:** Marketable skills (use of tools)

**Life Skill:** Practicing personal safety

**Educational Standard:** [NASPE 5] Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

**Success Indicator:** Compares tire pressure, valve type and tread

There are many different types of tires. Whether it's a fat, knobby tire on a mountain bike, a thin tire on a racing bike, a medium-sized tire on a hybrid bike, or a tire on the family car, it's important to keep them in good operating condition. This is your opportunity to learn about all kinds of tires.



Compare your bike to bikes in a store. Find tires that look different than your tires. Compare several kinds of tires and record what you see in the table. Then locate the information on the tires

that tell you how much air should be in your tires. Use a tire pressure gauge to measure the air pressure in your tires. If necessary, use a tire pump to inflate your tires to the correct pressure.



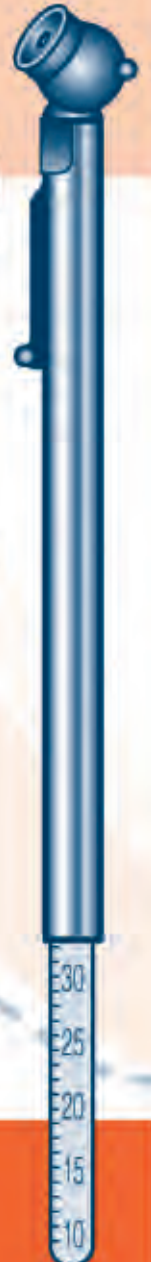
*A visual inspection of your tires will reveal worn and frayed spots, poor tread and low inflation.*



**Schrader valve**



**Presta valve**



## TIRE COMPARISON

	Tire Pressure	Valve Type	Tread
My Tires			
Friend's or Store #1			
Friend's or Store #2			
Car Tires			
Other Kind of Tire			



- air pressure
- psi
- sidewall
- tread

**Tool Kit**

Place to look at a variety of bikes, tire pressure gauge, tire pump

# BACKTRACK

## GET ROLLING (Share)

- Why is it important to inspect your bike's tires?
- What kind of information did you find printed on the tire?

## CRUISING (Process)

- What are some other things you should inspect on a bike tire to make sure it's safe?

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## SPINNING (Generalize)

- Why might you use different kinds of tires?
- Why is it important to have the right amount of air pressure in your tires?

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## FINAL LAP (Apply)

- How does tire maintenance contribute to your, and others, personal safety?

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## TIRES AND AIR PRESSURE

Air pressure affects how your bike will handle. With too little air pressure, you may get a flat as soon as you hit a bump or a pothole. If a tire has too much pressure, you reduce your control of the bike and the tube might explode.

Air pressure is measured in pounds per square inch (psi). Always follow the manufacturer's recommended tire pressure range printed on the tire. Sometimes tires will lose air even though there doesn't appear to be anything wrong with the tire—like a nail in it. If your bike sits around for a while, perhaps over the winter, it's very important to check the air pressure before going for a ride. In fact, you should check your tires every time you get on your bike.

It's important to check the sidewall of your tires. That's the part of the tire that's on the side not touching the ground. When a tire gets old and worn, there will be cracks that are signs of weakness. A weak sidewall might not be strong enough to hold the tube in the tire. If the tube breaks through, you've got a problem—a flat tire! When your tires have cracks in the sidewalls, it's time to think about getting new tires.

## TREAD TYPES

Tires with different kinds of tread have different purposes. If you have those big, knobby tires on your bike, they'll give you good traction so you don't slip on trails with unpaved surfaces. These same tires will make lots of noise and it will be harder to pedal your bike if you are using them on a paved surface.



## PEDALING HARDER

1. Teach a friend or younger child how to check bike tires.
2. Interview someone who works in a bike shop about bike tires.

# PATCH IT

Ever fixed a flat tire? Once you know how to do it, you'll have a whole new level of confidence and independence. Patching a tube is best done at home under clean, dry conditions. However, few flats occur at home. Experienced bicyclists carry a spare tube and patch kit when on the road. In this activity you'll practice repairing a flat and then demonstrate your technique to others.



1 Remove the tube.



2 This view shows a cross-section of the tire, tube and tire lever.



3 Locate the leak and then patch it.



4 Put the tube and tire on the rim.



First, practice repairing a flat tire. You may need some help removing the wheel from the bike and the tire from the wheel. There are usually excellent directions on the repair kit. You'll also find directions in Pit Stop. Once you have perfected your technique, outline a demonstration in the space provided and present it to your family or project group.

## DEMONSTRATION OUTLINE

Title of Demonstration \_\_\_\_\_

Introduction (tell them what you are going to tell them)

Body (tell them) \_\_\_\_\_

Conclusion (tell them what you told them) \_\_\_\_\_

# BACKTRACK

## GET ROLLING (Share)

- What was the easiest and hardest part for you in changing and repairing the tire?
- What steps did you include in your demonstration?

## CRUISING (Process)

- What things cause low air pressure or flat tires?
  - For what reason might you repair a flat instead of buying a new tire?
- 
- 
- 
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- 

## SPINNING (Generalize)

- What are other situations when it's good that you know how to fix something?
- 
- 
- 
- 
- 

## FINAL LAP (Apply)

- How many jobs can you think of that involve repairing broken things?
- 
- 
- 
- 
- 

PIT STOP



## CHANGING A FLAT TIRE

To be successful in changing a flat tire, you need to accomplish four things:

- **Remove the tube** without further damaging the tire or tube – see illustrations 1 and 2.
- **Repair the tube** – if you have trouble locating the leak(s), use the technique shown in illustration 3. Partially inflate the tube to check to be sure there are no additional leaks and that your patch is properly sealed.
- **Put the tube and tire back on the rim** without pinching the tube or valve stem. Use the tire levers and your hands carefully. Make sure that the valve stem is in straight and that the tube is contained within the tire. See illustration 4.
- **Inflate the tire** to the pressure indicated on the side of the tire.
- **Remount the wheel** on the bicycle.

## HOT TIP! STUCK WITHOUT A SPARE

If you're stuck without a spare or a patch kit, here's a trick that will let you ride home. Remove the damaged tube. At the site of the hole, cut the tube in two. Tie a tight knot with these two ends. Put the tube back on the rim and inflate it, but don't add as much air as you normally would.



## PEDALING HARDER

Assemble a demonstration kit for your demonstration to show others how to fix a flat. Ask a bicycle shop for old wheels and punctured tubes to use in your kit. Try to include examples of different types of tire damage. Don't forget patch kits. A store might donate expired patch kits to you, but use them for demonstration only, not for patches you expect to last.



- demonstration
- patch kit • spare
- tire levers
- tire pressure gauge
- tube • valve stem