Bike Safety, Fit & Protective Gear

LEVEL: K-1-2-3-**4-5-6**

SUBJECT AREA(S): Health, Social Studies, Language Arts, Art, Science

OBJECTIVE: Students will understand the fundamentals of smart (safe) cycling, including the importance of a properly sized bike, a helmet and gloves, and rider visibility.

For Your Information

★ None of the lessons about crossing streets address traffic signals fully because of their complexity.

TIME: One or two 30-45 minute lessons

MATERIALS

- ϕ Overhead projector
- ϕ Demonstration bicycle
- ϕ Reflective tape and examples of other retro-reflective items
- ϕ Demonstration helmet(s)
- ϕ Figure 19-1: The Bicycle
- ϕ Answer Key to Figure 19-1: The Bicycle
- ϕ Figure 19-2: Bicycle Fit
- ϕ Figure 19-3: Pre-Ride Check for Safety
- ϕ Figure 19-4: Parent/Guardian Letter
- ϕ Figure 19-5: Saving Heads with Helmets

SUGGESTED ACTIVITIES

1. The Bike: Bring in a real bike for a model. Have kids create, construct, or draw a bike and identify as many of its parts as possible. Then give each student a copy of Figure 19-1: The Bicycle. Compare it to their creations.

Have students complete the "Getting to Know Your Bike" section to the best of their ability. When they have finished, go over the answers, filling them in on the overhead projector and/or pointing out the location of each part on a demonstration bicycle.

Go over Figure 19-2: Bicycle Fit. Following the points made about frame size and seat height, have a student demonstrate how to check for proper fit.

For Your Information

★ A bike that is too big is awkward and dangerous for its rider.

Talk about Figure 19-3: Pre-Ride Check for Safety. As you discuss each of the items in the checklist, have a student point out and/or demonstrate the safety check on a demonstration bicycle.

2. Clothing: Why is it important to be seen when riding a bike, especially in poor weather or dim conditions?

For Your Information

★ It's strongly recommended that children do not ride their bikes at night, even with proper lights and reflective clothing – it's just not worth the risk.

★ Different clothing is appropriate at different times and in different light and weather conditions. In general, bright colors work in daylight; white, light-colored, and reflective clothing works after dark.

How does wearing gloves and long pants when bicycling protect riders?

For Your Information

★ A 1993 study states that the most significant injury-reducing factor for bicyclists is the use of gloves (cited in Nelson Pena, "After the Fall," *Becoming a Cyclist*, Rodale Press, 1993). All kinds of gloves – including bicycling, batting, golf, ski, and weight-lifting gloves – are effective in preventing cuts, abrasions, and other skin and tissue injuries.

- ★ Leg abrasions are minimized for riders wearing long pants.

Go over Figure 19-4: Parent/Guardian Letter with students. Have them share their ideas about who, besides pedestrians and bicyclists, wears reflective clothing (e.g., firemen, police on patrol, construction workers). Give each student a copy to take home to discuss with his/her parent(s)/guardian(s).

For Your Information

- ★ Firemen, paramedics, police on patrol, highway construction crews, and joggers also wear reflective clothing.

- ★ More and more sports-clothing and sports-equipment vendors sell retro-reflective tape and clothing made with it. Many athletic-shoe manufacturers put retro-reflective tape on shoe heels.

3. Helmets: Have students list all they can think of, past and present, who have worn or wear helmets in an effort to protect themselves from injury in an activity. Ask students to share their lists with the entire class and to discuss why they think so many people wear helmets.

Possible answers: knights, police, soldiers, motorcyclists, construction workers, miners, baseball players, football players, hockey players, race-car drivers, astronauts, airplane pilots, sky divers, deep-sea divers, firefighters, dirt-bike racers, gladiators, top guns, etc.

For Your Information

- ★ The helmet is the most important piece of safety equipment a bicyclist has, other than common sense. Eight out of every ten deaths involving a bicyclist are the result of head injuries.

- ★ The Pena study also says that hospital stays are shorter and injuries less sever for riders who wear helmets.

- ★ Because helmets are worn to protect the forehead and top of the head - where falling riders are most likely to hit the ground – helmets must fit the head snugly and not move around. Straps should be adjusted to hold the helmet squarely on the head. Straps that come from the temple should be adjusted to hold the helmet down on the forehead.

Using gym mats or helmets, ask student to stand up and fall, while noticing where their unprotected heads will land.

For Your Information

- ★ Kids' heads are bigger proportionately than those of adults, so children's heads will lead in a fall, making them more vulnerable to head injuries than adults.

Have students take home Figure 19-5: Saving Heads with Helmets. Ask them to share this information with their parent(s)/guardian(s) and other family and friends.

ASSESSMENT

Discuss the materials used in constructing a bicycle. Design or construct a bicycle as a class project.

EXTENSIONS

1. Invite a speaker to class to go through the figures with students and to show them a variety of safety gear associated with smart cycling. (Refer to *Additional Resources* section in Appendix Three.)

2. Invite a Fort Collins bike-patrol police officer to class to speak about bicycle safety and how it relates to his/her job.

3. Have students research the history of bicycles and bicycling, or their own bicycle.

4. Imagine what famous events would have been like if they had happened on bikes (e.g., Paul Revere's ride).

5. Go to a bicycle store to learn about different brands and types of bikes.

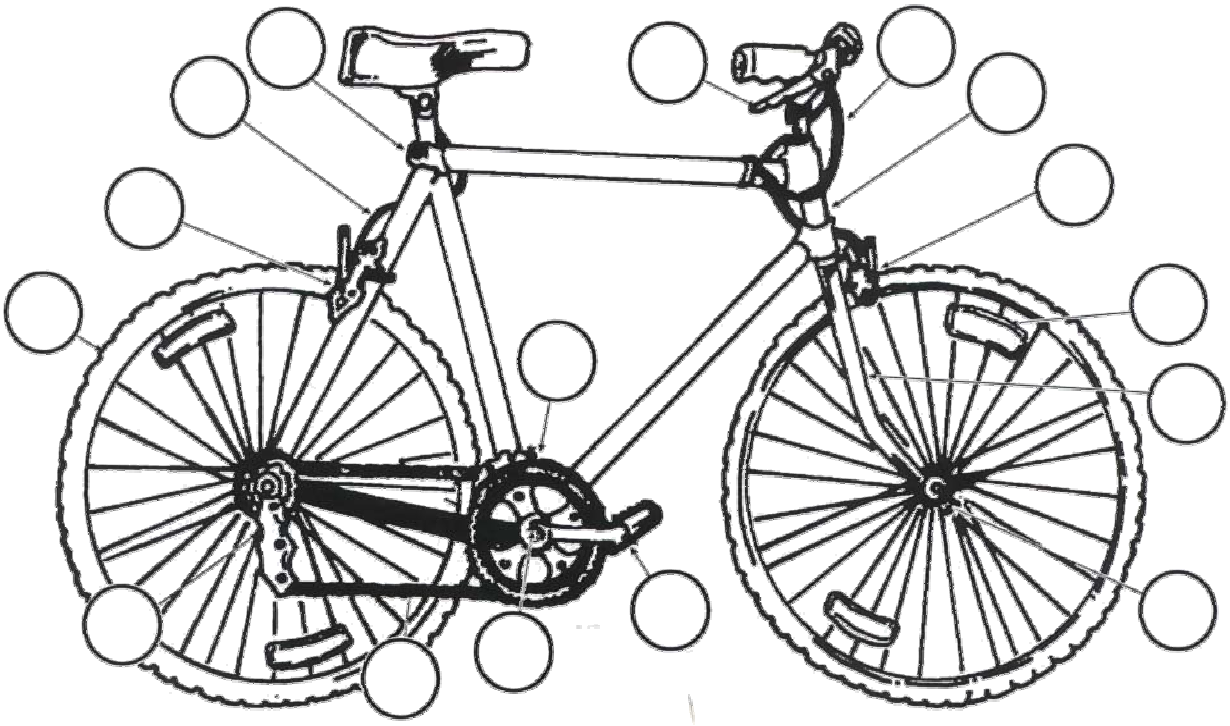
ADDITIONAL RESOURCES

Please refer to the following topics in the *Additional Resources* section in Appendix Three: **Bicycles / Bike Safety / Child Safety/Injury Prevention / Retro-Reflective Gear.**

Insert Figure 19-1 and Answer Key to Figure 19-1 here.

THE BICYCLE

Directions: Label each bicycle part pointed out below with its corresponding number. Some numbers will be used more than once.



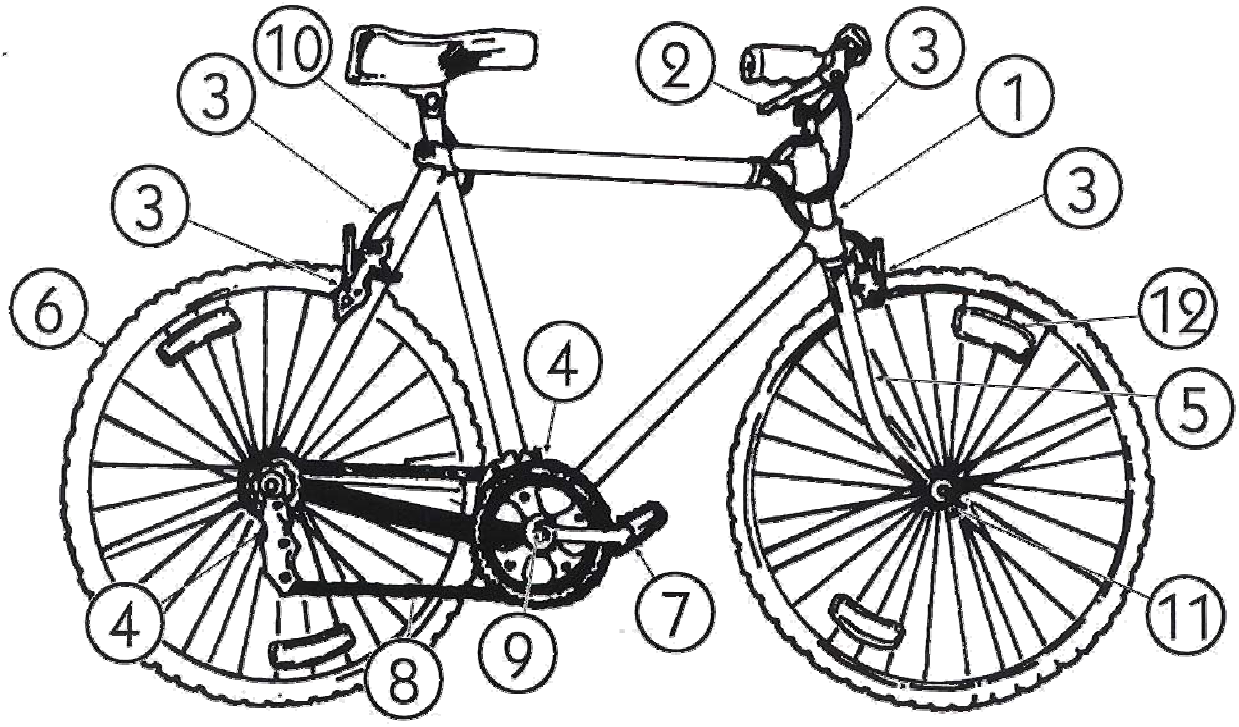
Important Bicycle Parts:

1. headset
2. brake levers
3. caliper (hand) brakes and cables
4. derailleurs–front and rear
5. forks
6. tires
7. pedals
8. chain
9. crankset and bottom bracket
10. seat adjustment
11. wheel quick release
12. reflector

Getting to Know Your Bike:

Get to know, love and respect your bike: Give it a name. Talk to it. Treat it with respect. Keep it clean, well-adjusted and well-maintained. This will not only cut down on costly repairs, but will also prevent accidents due to faulty equipment. Your bike is a vehicle with all the rights and responsibilities of any other vehicle on the road.

THE BICYCLE



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Bicycle Fit Checklist

✓	What to Look For
	Frame Size. Stand over the top tube with your feet flat on the ground. There should be at least one inch of clearance between your crotch and the top tube. Never buy a bike so that you can grow into it.
	Seat Height. Sit on the bike with your foot on the pedal in its lowest position. Your leg should be almost straight. The seat should be level and secure.

Figure 19-2

✓	What to Look For
	Helmet/gloves/other clothing/equipment. Fit snugly, but not too tightly. Brightly colored or retro-reflective. Helmet in good condition, approved by Snell or ANSI (American National Standards Institute), adjusted and worn properly.
	Headset. Turns freely and doesn't rattle.
	Tires. Properly inflated to provide for good traction and steering control.
	Wheels. No more than 1/8 of an inch of wobble in the rim. No broken spokes. Wheels centered in the forks and don't touch brake blocks.
	Wheel quick releases. Properly adjusted and locked. (Quick wheel releases that are not secured properly will cause wheels to come loose and can result in serious injuries to riders.)
	Brakes (caliper or coaster). Nuts on the brake bolts are tight. Brake pads don't touch the rims unless you are squeezing the brakes. Levers stop one inch from the handlebars when the brakes are fully applied. Squeeze the brake levers and rock the bike to make sure they are tight and properly adjusted.
	Shift Levers. Move easily when you shift, but not at all when not shifting
	"Bike Bounce." Bike can be lifted up and bounced on its tires without hearing rattles, clicks, and unusual sounds that may require bolt tightening and/or adjustment.

Figure 19-3

_____
date

Dear Parent(s)/Guardian(s):

Today, your child learned about the importance of wearing a bike helmet, gloves, and visible clothing while walking and bicycling. Please discuss with your child what visible clothing is best seen at different times of day (bright colors in daylight hours, white or light-colored clothing after dark). Stress the importance of being seen by drivers. Also, please read the bicycle-helmet information your child brought home today.

Every year in the United States, more than 50,000 young people are killed or injured in pedestrian and bicycle accidents, often because drivers failed to see them in time to react or stop or because they were not wearing a bicycle helmet. So please be sure your child is dressed to be seen whenever he/she is outdoors near or on streets and roads. If he/she rides a bicycle, please invest in a bicycle helmet; the money you spend might save your child's life.

Retro-reflective tape is an economical way to make your child visible to motorists day or evening, simply by applying it to shoes, jackets, and/or packs. This material can increase the visibility of pedestrians and bicyclists as much as five times. Retroreflective gear and tape are becoming more and more available in bicycle shops, outdoor clothing stores, sports equipment stores, and general-merchandise/variety stores. Some athletic-shoe manufacturers put the tape on shoe heels.

Sincerely,

_____
teacher's signature

Figure 19-4

Are Five Good Reasons Enough?

1. Each year 50,000 bicycle riders suffer serious head injuries.
2. Of all bicycle deaths, 80% are due to head injuries.
3. A bike helmet costs at least $950 *less* than one trip to the hospital.
4. You have only one head, and you need it.
5. It's the law.

You need a bicycle helmet no matter what age you are, what kind of bicycle you ride, or where you ride.

A Good Helmet Has Five Characteristics

1. Approval stamp of Snell or ANSI
2. Stiff and smooth outer shell to distribute impact and protect against sharp objects
3. Impact-absorbing liner made of polystyrene at least ½-inch thick
4. Forehead protection
5. Comfortable fit

Figure 19-5