A COURSE IN

BICYCLE DRIVER EDUCATION

INSTRUCTOR LESSON PLANS

Contract No. DOT-HS-7-01726

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Prepared for:

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FOREWORD

This fourth grade comprehensive bicycle safety training program was developed under Contact No. DOT-HS-7-01726. The training program is documented in three volumes, each published separately:

1. Course Guide — This document provides an overview of the contents of the training program and describes the administrative needs such as time required, facility and equipment needs, and special preparation for local use. The final section of this Course Guide is concerned with the rationale upon which the course was based. This section is included because it is necessary for the administrator/teacher to understand the course and possible means of prevention for each of the ten bicycle/motor vehicle accident types.

2. Instructor Lesson Plans — For each of the ten lessons in the program, this document includes a detailed lesson plan which a teacher can easily adapt to local needs as well as to his/her teaching method. Each lesson plan includes a listing of objectives, the necessary teacher preparation activities, an outline of the subject matter to be taught, and suggested instructional methods and techniques to present this information. The Instructor Lesson Plans are augmented by the following visual aids:

   - Slide presentation on bicycle maintenance
   - "Overhead" projection transparencies
   - Bicycle Safety film
   - Set of slides to support the Bicycle Safety Game

3. Student Workbook — This document consists of student activities (games, puzzles, etc.) designed to interest and challenge the student while reinforcing the safety concepts taught in the classroom. In addition, booklets in bicycle maintainence and bicycle rules of the road have been incorporated into the workbook.

Dr. Alfred J. Farina, Jr. of the Office of Driver and Pedestrian Research Division of the National Highway Traffic Safety Administration served as Contract Technical Manager.

The training program was developed by Ms. Mary Lou Farrell of Dunlap and Associates, Inc. Dr. Kenneth Cross of Anacapa Sciences, Inc., and Dr. William A. Leaf, of Dunlap and Associates served as technical consultants to the project. Mr. Richard Blomberg, Vice President of the Corporation, was the responsible corporate officer and project director.

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INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 1 — Introduction

The objective of this lesson is to catch the interest of students and set a pattern of positive involvement for subsequent lessons. The entire course is heavily dependent upon active involvement and discussion by the students. One way to encourage this involvement is to have students talk about themselves and their bikes.

The suggested teaching method for this unit is "discussion-in-the-round." The most appropriate seating arrangement for this method is the large-circle arrangement with the teacher and the class sitting in a single circle. This seating arrangement is important since it ensures that students can see and hear each other and invites open discussion. Equally important is the understanding that student performance will not be graded. Since there are no "wrong" answers, students should feel free to express their own ideas, based on observations and experiences, and gain satisfaction from knowing that the teacher is interested in what they have to say. This should create a positive atmosphere for the remainder of the course.

To the degree possible, the teacher should act as a group member. However, the teacher must perform several managing tasks:

1. Arrange chairs in a circle (This can be done while students are at lunch or recess to avoid confusion.)

2. Ensure that each student can see and hear.

3. Handle discipline.

4. Ensure that each student speaks at least once.

5. Present questions for discussion.

To begin, have students turn to page 1-1 in their workbook and answer the two questions presented. Then ask students, one by one, how they answered these questions. As students answer, make a tally of the bicycle type owned by each member and a tally of the bicycle type each member would like to own. (You may prefer having a student keep this tally. In either case, draw the matrix on poster board so that everyone can see the completed tally). As you, or a student, complete the large matrix, students can keep their own tally on the matrix in their workbook. Be sure to consider the possibility that some children have or would like to have more than one kind of bike for different kinds of riding uses.

Once the tally has been completed, you can ask questions about the popularity of the different bicycle types. Example questions include:

- How many people in the class now own a highrise bicycle? A standard or middleweight bicycle? A lightweight bicycle?

- In terms of present ownership, which type of bicycle is most popular?

- In terms of desired ownership, which type of bicycle is most popular?

- Why do you want a bicycle that is different from the type you now own? (Ask several of the class members who express a desire for a different type bicycle than the one they presently own.)

Now ask students why they ride their bicycles. There should be a variety of answers, including play, transportation and perhaps job performance. Be sure that the ideas that bike riding is useful and fun are clearly brought out.

Ask students whether they have ever had an accident when riding a bike. Almost all children have fallen from their bikes, or crashed into fixed objects. Some may have hit (or been hit by) moving cars or have had some other kind of accident because they had to avoid a motor vehicle. After students have described some of these incidents, have them turn to page 1-2 in their workbook and answer each question. Then ask the class to identify, with a show of hands, the accidents they have had in the last year. Students can keep a tally of accidents on the matrix on page 1-3 of their workbooks as you, or your student helper, keep a tally on an enlarged copy. If there are enough students with each type of bicycle, they may find it interesting to list accident frequencies by type of bicycle owned, to see if some kinds of accidents occur more frequently with certain kinds of bicycles. (Otherwise, just use the "Total" column.)

In discussing the students' accident experience, keep in mind that the primary focus of this course is on safe riding in traffic and in the avoidance of accidents with motor vehicles. Although all accidents can be serious, those involving motor vehicles are much more likely to lead to injury or death. Also, children of this age should be just beginning to ride in the streets in trafic, and they know comparatively little about where to ride in the roadway, how to negotiate intersections, how to communicate with other roadway users, or where to look for specific hazards. The course, therefore, dwells on these aspects. Nevertheless, the course can help prevent other kinds of accidents as well, since some of them happen indirectly because of traffic difficulties and because the course increases the knowledge and maturity the young bicyclists bring to all their riding activities.

Once the accident tally has been completed, you should ask questions which will help students understand the findings of the tally. Suggested questions include:

- What type of accident occurs most often? What is the second most frequently occurring accident? The third most frequently occurring accident?

- The accidents you see listed can be divided into two types, accidents in which the bicyclist fell from his bicycle and accidents in which the bicyclist hit something. Which happens more frequently, "falling" accidents or "collision" accidents?

- Which of the "falling" accidents happens most often? Which of the "collision" accidents happens most often?

- Now consider just the accidents in which a bicycle collided with another vehicle. Which of the "multiple-vehicle" accidents happens most often?

Now direct students' attention to the relationship between accident type and severity of injury. Since students can be expected to have had limited accident experience, a tally of the injuries actually sustained by them in bicycle accidents will probably not reveal a significant interaction between accident type and severity of injury. One way of revealing this interaction is to take a poll of students' opinions about the type of accident that is most likely to result in serious injury or death. This can be accomplished quickly by asking several class members to identify the type of accident they consider most dangerous (most likely to result in serious injury or death). Once the four or five most dangerous accident types have been identified, ask students to identify, by a show of hands, the type of accident they consider most dangerous.

Then ask students to try to explain the reasons why one type of accident is more dangerous then another. The accident type the class considers most dangerous should be contrasted with the others. Accidents involving motor vehicles should be chosen as the most dangerous type. Motor vehicles are heavy, they have corners and points, and they can be moving very fast: they have the greatest potential for causing damage. Nevertheless, be sure that students understand that any of the accidents listed could result in serious injury or even death (even though the probability may be low for some types of accidents).

Students may want to spend some time discussing the factors that make bicycle/motor vehicle accidents most dangerous. Give some time for this discussion but explain that they will be able to study these factors more closely later in the course.

Now that students are involved, take a few minutes to describe some of the activities they will be doing for the remainder of the course. You may not have your class involved in all of the activities described below. Mention only those you are sure you will be doing.

- o A police officer will visit the class to talk about bicycle laws and safety rules and why it is important to obey them.
- o A bicycle shop owner will visit the class to demonstrate simple bicycle maintenance techniques.
- o View a slide presentation on bicycle care and maintenance.
- o View and discuss a film about bicycles and bicycle safety.
- o Perform experiments that will teach us how to use our eyes and ears properly when riding a bicycle.
- o Complete interesting puzzles and activities that will teach the bicycle rules of the road.
- o Play the "Bicycle Safety Game." (Appendix A)

  To play this game, the class will be divided into two teams, a "Red" team and a "Blue" team. A team member will be asked a question about bicycle safety. If the team member answers correctly, his team will be awarded points. If the team member cannot answer the question or answers it incorrectly, a member of

the other team will be given the opportunity to answer the question. If a correct answer is given, the second team is awarded points. The team that has the greatest number of points at the end of the course will be given a special prize. (Full rules and materials are given in Appendix A).

- At the end of the course, you will be given a bicycle safety quiz (Appendix B). The test will be very easy to pass if you pay attention in every class and if you learn the rules of the road and the other material that is presented in the workbook.

If there is time (approximately 15 minutes), you can divide the class into teams for the "Bicycle Safety Game" at this time. (Note that the game itself will not actually be played until the third lesson.)

The Bicycle Safety Game is most effective when the class is divided into two teams of equal ability. If you have sufficient knowledge of the capabilities of class members, it may be possible to selectively assign students so that the composite ability of the teams is closely matched. Otherwise, it would be best to assign students to teams using a randomization procedure. For a class of N students, the instructor can place N/2 red cards and N/2 blue cards in a small box, mix the cards thoroughly, and let each student draw a card from the box. Students who draw a red card are assigned to the Red Team; students who draw a blue card are assigned to the Blue Team.

After team assignments have been made, team members should be seated together on opposite sides of the room and instructed to sit in the same seat throughout the entire course. You may wish to make a seating chart at this time.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 2 — Inspecting Your Bicycle

OVERVIEW: This lesson deals with the mechanical aspects of bicycles and bicycling. The lesson can be taught *from the slides* and the information in this Guide even if you are unfamiliar with the subject matter. The lesson plans contain three levels of information to fill in any gaps in your knowledge and allows the lesson itself to be taught generally or in depth, as desired. The lesson may be more effective if you invite a bicycle expert, such as a bike shop owner, to discuss the equipment and its maintenance using real bicycles.

The lesson covers three related topics:

- o Description of various kinds of bicycles along with their parts and functions
- o Determining proper "fit"
- o Inspection for mechanical problems, understanding of their safety implications, and suggestions on how to obtain repairs

Depending on the level at which this lesson is taught, students may learn only general information about bike parts and how to detect gross mechanical problems, or they may learn much more, perhaps enough to perform detailed inspections and perform adjustments and minor repairs themselves.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Identify criteria for determining proper "fit"
2. Match parts to their functions and possible malfunction effect
3. Identify required or recommended safety equipment
4. Perform a safety inspection following a given procedure

EQUIPMENT: 35 mm slide projector; actual bicycles (optional)

MATERIALS: Prepared slides

PREPARATION: Arrange for a local bike shop owner or knowledgeable policeman to speak to the class about safety inspection and maintenance (optional).

CONTENT

I. What is a bicycle?

A. Two wheels, made up of. . .

1. Hub and axle (with bearings) in the center;

2. Spokes connecting the hub and . . .

3. Rim: the outer metal circle, holding the . . .

4. Tube which holds air under pressure, inside the . . .

5. Tire which protects the tube and gives traction for starting, turning and stopping.

B. Held in place by a frame.

1. The frame is the "diamond-shaped" thing running from the rear wheel hub to above the front tire. The frame should be stiff and strong.

2. There are three common types of frames:

a. True diamond shape. This is called a boy's frame.

b. Girl's frame which is necessary if one is wearing a skirt.

c. "Mixte" (mix-teh) frame. This frame is used on some 10 speeds. It is stronger than a girl's frame but still has a lowered bar.

C. To control the front wheel, a fork and handlebars which are connected by the stem.

D. To sit on, a seat (also called saddle).

E. For your feet pedals (attached to the crank).

F. To make it go, a chain from pedals and crank to back wheel.

G. To make it stop, brakes.

1. There are two common kinds of brakes:

a. Coaster brakes are operated by turning backwards on the pedals. These brakes are only on the rear wheel.

b. Hand or caliper brakes. These brakes, if present, are on both the front and the rear wheel. (Sometimes you find a coaster brake on the rear wheel and a hand brake on the front).

H. Put all the parts together, and there you have a bicycle.

INSTRUCTIONAL STRATEGIES

Display slide 2-1 (a detailed picture of a bike with the specific part under discussion highlighted).

Display slide 2-2 ("frame" highlighted).

Display slide 2-3 (shows girl's frame and "Mixte.")

Display slide 2-4 (shows fork and handlebars).

Display slide 2-5 (shows several types of seats).

Display slide 2-6 (pedals and crank highlighted).

Display slide 2-7 (chain highlighted).

Display slide 2-8 (picture of coaster brakes, which arrow pointing to brake arm).

Display slide 2-9 (hand brakes).

Display slide 2-10 (a beautiful bicycle).

CONTENT

II. There are basically three types of bicycles. A bike should be chosen to fit personal needs.

A. The middleweight.

1. The middleweight bike may have a curved frame, heavy wheels and soft tires. It usually has one to three speeds with either coaster or caliper brakes.

2. This bike is strong and will last a long time. It is comfortable because of its low riding position and is a good stable bike to learn on. It is also good for riding on rough roads and for carrying loads in appropriate carriers.

B. The lightweight.

1. The lightweight bike has a frame of thin straight tubes and the wheels have narrow, high pressure tires. There are three to ten (or more) gears and caliper brakes with the brake levers mounted on the handlebars.

2. This is a suitable bike for long distance driving. It is built for speed and should be ridden on well maintained roads. It is a bike recommended for experienced riders as it requires more skill to balance, shift, and brake than the middleweight.

C. The highrise.

1. The highrise bike has a compact frame with high U-shaped handlebars. The wheels are small with a heavy tread. This bike can have one to ten gears and it has either coaster brakes or hand lever caliper brakes.

2. This bike is very maneuverable. It is designed for fun and it is popular for neighborhood trips. If a highrise is chosen, make sure the gear shift lever is not on the top horizontal bar where it could harm you in a fall or sudden stop.

III. How to tell if your bicycle "fits" you.

A. A safe bike fits the rider. You should never ride a bike that is too large or too small because it is hard to handle and dangerous.

B. For a highrise, sit on the bicycle:

1. The handlebars should be below shoulder level.

Display slide 2-11 (picture of a middleweight bike).

Display slide 2-12 (picture of a lightweight bike).

Display slide 2-13 (picture of a highrise bike).

Display slide 2-14 (showing proper handlebar position).

2. The handlebars should be tilted far enough forward so that you can turn sharply without the ends of the handlebars hitting you or the seat.

3. The seat should be the same height or slightly higher than the stem.

4. There should be a slight bend at the knee when the ball of your foot is on the pedal and the pedal is all the way down.

C. For middleweights and lightweights.

1. If the bike has a top tube, you should be able to straddle your bike and clear the crossbar by about 1½ inches with both feet flat on the ground.

2. While sitting on the seat with the heel of your foot on the pedal, your leg should be just straight at the knee. (You ride with the ball of your foot on the pedal, of course; this is just for testing fit.)

3. The top of the stem should be about even with the top of the seat for either regular or drop handlebars, though it can be adjusted up or down for comfort. Never ride with drop bars turned upside down.

INSTRUCTIONAL STRATEGIES

Display slide 2-15 (showing proper seat position).

Display slide 2-16 (showing rider with proper fit).

Display slide 2-17 (showing a 10-12 year old straddling top tube of a middleweight bike, feet flat, no pain).

Display slide 2-18 (showing proper leg fit on a lightweight).
Note: This measure of seat height is an alternative to the "ball-of-foot-on-pedal-knee-bent" procedure suggested above and should give exactly the same results. It may be a little easier to use.

Display slide 2-19 (showing rider with hands on handlebars in normal riding position on the road — two bikes, side view, one with normal bars and one with drop bars and hands on the bottom grips).

Emphasize that in either case, the fit should feel comfortable after the rider gets used to it. Any new adjustment may feel funny at first, but if it's right it should soon feel natural and comfortable and the rider should be able to pedal easily and control the bike confidently.

As a review:

Remind students that to be ridden safely, a bicycle must fit properly.
Proper fit is based on the:

- age of the rider
- leg length
- frame and wheel size

For proper fit and balance, the rider must consider:

- proper bike size
- proper seat adjustments
- proper handlebar adjustment

If possible, have three bikes of different wheel size in classroom adjusted for short, average, and tall fourth graders. Have students determine their best fit.

CONTENT

IV. Bicycle maintenance.

A. You should always check your bike before you take it out. A bike is not safe unless it is road worthy.

B. To be certain the entire bike is inspected, you should inspect your bike by starting with the front wheel along one side and around to the opposite side returning to the first item inspected.

C. Look at your front wheel. It should be in the center of the fork blades and the axle should be tightly fastened to the fork blade ends. The wheel should turn easily; if it turns hard or wobbles when you push the tire from side to side, the axle needs adjusting or repairs.

1. Pluck the spokes. They should all go "plink", not too high or too low, and none should be very loose ("plock") or broken.

2. When you spin the wheel, the outside should track straight and not weave from side to side.

3. The rim should not have any dents or bends, and, if you have caliper brakes, the rims must be clean and dry (no oil).

D. Check the tire pressure. The proper value is usually inscribed on the side wall of the tire, and you can test tires if you have a pressure gauge designed for bicycles.

1. Properly inflated tires make bike driving safer and less tiring. A quick check can be made by pushing the fingers into the tire. If this is possible, the tires are too soft.

INSTRUCTIONAL STRATEGIES

This section on bicycle maintenance is superficial and intended to further introduce the parts of the bicycle as well as alert students to the most important mechanical components and then possible serious malfunctions.

More information on this subject is included in students' workbooks in a form suitable for their reference after the course is over whenever they need to fix or maintain their bicycles. It is divided into two sections. The first is a "trouble-shooting" guide, or an inspection procedure for bicycles they ride daily. It singles out symptoms of trouble and, for each symptom, points to the mechanical component which is likely to be malfunctioning. The second is a more comprehensive guide to repairs. For each significant mechanical component (e.g. seat, handlebars, wheel, brake), important possible failures and repair procedures are identified. These sections of the workbook may be useful reading for the teacher who wants more background for teaching this section.

If there is a bicycle shop owner in the community who is interested and willing to come to class, this would be an ideal lesson for him/her to cover. Illustrations can be more effective, too, with one or more demonstration bicycles and perhaps a repair stand which holds a bicycle and allows it to be turned in any direction.

Display slide 2-20 (boy with bike, arrow showing that maintenance should include entire bike).

Display slide 2-21 (proper wheel position).

Display slide 2-22 (the "plock" test).

Note that either problem (1 or 2) requires spoke adjustments or repairs.

Display slide 2-23 (showing where tire pressure is inscribed).

E. Look at the tread on your tires. See that it is straight and that there are no worn spots. Look for anything unusual like glass or tacks embedded in the tire.

1. The tread must be able to grip the road when the brakes are applied or the bike changes direction.

2. Any foreign object may bruise or cut the tire and cause a puncture.

F. Inspect the tire valves. They should be pointing straight toward the hub.

1. A crooked valve usually is caused by riding the tires at too low a pressure. Crooked valves may get cut by the rim and cause a flat. To straighten one, let out almost all the air until you can wiggle the valve straight, then inflate the tire properly.

G. Look at your brakes and make sure they work. With caliper brakes, the brake blocks should be parallel with the rim. Check the cables to see that they are in good condition.

1. For coaster brakes, see below.

2. If the bike is unfamiliar to you, it should be test driven and the brakes applied. They should stop the bike quickly and smoothly.

H. Your brake levers should not touch the handlebars when applied hard. If they do, you won't be able to stop fast in an emergency. The levers can be adjusted by a special adjustment bolt on or near to the brakes themselves.

I. The saddle should be parallel to the ground.

1. The saddle should be tight so that it will not move up and down or from side to side.

2. For strength, two inches of the seat post should be left in the frame when the height was adjusted to fit the rider.

J. Check the condition of your frame. Make sure it is straight, and not cracked.

1. A crack in the paint might indicate a cracked or broken frame, especially at a welded joint.

K. Next you should check your rear wheel the same way as you did the front. Feel the spokes and see that the rim is straight and that the hub is adjusted correctly.

INSTRUCTIONAL STRATEGIES

Display slide 2-24 (showing worn spot on tread).

Display slide 2-25 (wheel with tire valve).

Display slide 2-26 (caliper brakes).

Display slide 2-27 (close up of handlebars and brakes).

Display slide 2-28 (showing saddle positioned correctly).

Display slide 2-29 (closeup of boy's bike frame).

Display slide 2-30 (boy checking back wheel).

1. The rear wheel should fit securely in the frame. The back wheel is the driving wheel and, therefore, it takes a great deal of strain.

2. Adjust the wheel using the same method as described for the front wheel.

L. Check the rear brakes.

1. If they are caliper brakes, check as you did the front ones. If the rear brakes don't work well, you could fly over the handlebars in an emergency stop.

2. If they are coaster brakes, make sure that the brake arm at the rear axle is fastened securely to the frame and that the brake, if applied hard, will make the rear wheel skid on dry pavement.

M. If the bicycle has two or more gears, check that all levers, cables, and (possibly) derailleurs are secured to the frame and in good working order.

1. The bike should be test ridden and the gears shifted in a place where it is safe to practice.

N. Check that the chain is properly lubricated (not dry but not dripping oil either) and check that the tension is correct. Inspect the links to see that they are not bent or rusted.

1. For chains on bikes without derailleurs, they must have a little slack so they won't bind. Check that the chain moves up and down an inch or so. If it doesn't move at all, it is too tight and the chain will wear quickly or break. If it moves up and down a lot (as much as your hand is wide). The chain is too loose and might come off.

2. If the chain is loose it can be tightened by moving the wheel back in the frame.

3. For chains on derailleur bikes, they must have just enough slack that the bike can be easily shifted through all gears.

O. Be sure your pedals are secure and that they run freely. If you have the type with built-in reflectors, make sure they are clean.

P. Safety Additions

1. Lights, reflectors and other aids to help motorists see you.

a. Required by law for riding after dark.

INSTRUCTIONAL STRATEGIES

Display slide 2-31 (showing left side of rear hub with coaster brake, arrow showing point that brake arm is fastened to the frame).

Display slide 2-32 (showing both derailleur gears and hub gears).

Display slide 2-33 (closeup of properly adjusted chain).

Display slide 2-34 (pedals with built-in reflectors).

Note to the teacher: Safety equipment will be discussed in later units, showing how it can help in reducing accidents. At this time, students should simply be aware of some of the types of safety equipment available.

Remind students that a bicyclist is hard to see — at night and even during the daytime. Ask students why motorists find it hard to see bicyclists. (They are small, maybe in unusual places, are not expected by motorists, etc.)

CONTENT

1. Front (white) headlight

2. Rear reflector — red

3. In some places, a red taillight in addition to the rear reflector.

b. CPSC new-bike reflectors: All bikes sold new must have:

1.	Front reflector:	colorless
2.	Rear reflector:	red
3.	Pedal reflectors:	colorless or amber
4.	Spoke reflectors:	amber in front, red on rear wheel

c. Good ideas

1. On bicycles

   - o Taillights
   - o Flashing lights
   - o Safety flags

2. Attached to bicyclists

   - o Lights that attach to leg or arm for motion plus light
   - o Reflective, bright-colored clothing or strips attached to clothing

3. Rear view mirrors to help the bicyclist see behind.

INSTRUCTIONAL STRATEGIES

Should be bright and light the road ahead.
Display slide 2-35 (variety of lights and reflectors).

This is the minimum legal requirement. A red taillight is a simple and useful addition, even if not legally required.
Note: That these are minimum legal requirements. They are not always adequate, so the more lights and reflectors used, the better. And riders after dark should always ride as if they have not been seen.

Display slide 2-36 (showing where reflectors are mounted).

Note: The top of the rear reflector should be set at least three inches below the seat. Both the rear and front reflectors must be mounted straight so they reflect directly toward the eyes of a driver of an approaching car.

The center of each reflector mounted on the wheel should be within 3-1/2 inches of the inside of the rim. Reflectorized tire sidewalls can be used instead of spoke-mounted reflectors.

Display slide 2-37 (showing other safety devices).

This is a good time to briefly demonstrate any reflective or fluorescent materials you will be using in conjunction with Lesson 10.

Remind students that rear view mirrors can be very important since looking behind is a difficult maneuver. Bicyclists may waver a bit when they look behind, and in some tight places this can be dangerous. But research has shown that virtually all bicyclists <u>can</u> look behind themselves while riding without much loss of control, even though they may feel uneasy doing it.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 3 — Introducing Detective Wheel

OVERVIEW: Strong emphasis on bicycle/motor vehicle accidents begins in this lesson. "Detective Wheel" is introduced; he is a character who investigates accidents and who will, over the rest of the course, help explain types of bicycle/motor vehicle accidents, their causes and their prevention. The "Decision Making Process" is presented as a general procedure which should be followed by all bicyclists to ride safely. It consists of four steps:

- o Searching the environment for traffic clues
- o Predicting what is likely to happen
- o Deciding what must be done to keep riding safely
- o Acting out the decision successfully

Both Detective Wheel and the Decision Making Process will be an integral part of the rest of the course.

Overall, most bicycle/motor vehicle accidents can be categorized into ten classes, or "cases." They are each covered individually during the remainder of the course. In this lesson, Case 1 - Ride Out Driveway is discussed. In it, young bicyclists ride abruptly out of residential driveways and strike — or are struck by — drivers who had too little time to react. The suggested preventative measure is for bicyclists to always slow or stop when coming down driveways and to search left-right-left to see that there is no nearby traffic before entering the roadway.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Match relevant safety terms to their definitions
2. Describe the decision making process
3. Describe the use of the decision making process in traffic related situations
4. Describe the proper way to ride out of driveways

EQUIPMENT: 35mm slide projector

MATERIALS: Prepared 35mm slides

PREPARATION: This lesson is to be taught by the method "discussion-in-the-round." Arrange seats accordingly. In addition, contact your police or newspaper and request the latest bicycle/motor vehicle accident figures for your town. These figures will help convince students that accidents can happen to them.

CONTENT

I. Searching for Accident Causes

A. In the mid 70s, there was a dramatic increase in the number of bicycle/motor vehicle accidents. Last year, more than 1,000 bicyclists were killed and over 40,000 were injured across the country. Many of these bicyclists were children.

B. Bicycle/motor vehicle accidents have become a very serious problem. The Consumer Product Safety Commission reported that of all household items, the bicycle is the most dangerous.

C. Many people are trying to find out why these accidents happen. These people hope that if they can teach everyone what causes accidents, bicyclists will ride more safely and have fewer accidents.

D. These "detectives" go to the scene of an accident and study all the clues to figure out why the accident happened. Then they write up their findings on an Accident Report Form. The clues include:

1. Whether at an intersection or not.

   a. Intersections may be busy with crossing or turning traffic, pedestrians and other bicyclists.

   b. It is difficult to search effectively since there are <u>many</u> places from which others could appear.

   c. Some places that are not considered intersections can act like them and be extra busy — where driveways, alleys, or even sidewalks meet the edge of the street.

INSTRUCTIONAL STRATEGIES

While students are out of the room, arrange chairs in a circle. When students have returned and are seated, review the rules for "discussion-in-the-round." Emphasize the following:

- o There are no absolute answers; we are interested in students' ideas.
- o Each student will be given an opportunity to speak.
- o If a student wishes to speak, he must raise his hand and wait until called on.

Now introduce the topic, Why Accidents Happen.

Direct students to page 3-1 in their workbooks. Discuss the national accident figures.

It is important for children to realize that bicycle accidents happen to kids their age. It would be helpful if your local accident figures could be presented using the graphs on page 3-2 in the student workbook. Help students to draw the bars to complete the graph.

The following "discussion-in-the-round" will cover features of accident situations that make bicycling more dangerous — like intersections, darkness, and rough roads. Even where none of these hazards are present, though, many accidents happen. Any roadway situation has some potential for danger. You, the teacher, must be very careful never to give the impression that the absence of these hazards makes bicycling safe: it doesn't — it just makes accidents easier to avoid by alert, knowledgeable bicyclists.

Direct students to page 3-3 which illustrates intersections and areas that act like intersections. Ask students why bicycling at an intersection is dangerous.

2. Traffic control devices.

   a. Where present, they are intended to control conflicting sources of traffic, to let them mingle safely without making anyone wait too long.

   b. Accidents can happen if someone (usually a bicyclist, but sometimes a motorist) ignores a control which requires him to stop or yield.

   c. Accidents can also happen when drivers do not know how to react at two-way and four-way "Stop" signs.

   d. Accidents can even happen when drivers stop at signs or lights but start up again before bicyclists are out of the way.

3. Light level.

   a. Darkness makes it very difficult to see or be seen, even with lights and reflectors.

   b. Dusk or any time with very heavy cloud coverage can be as dangerous as night.

   c. Bright lights can help but it is just as important that bicyclists know how hard it is for others to see them and be extra careful to compensate.

4. Condition of bicycle.

   a. A bicycle in poor condition can make riding uncomfortable and may cause single-vehicle accidents in significant numbers.

INSTRUCTIONAL STRATEGIES

Ask students why some intersections have traffic lights, some stop signs and others no traffic controls at all. (Valid reasons for installing traffic controls are usually based on amount of traffic, sometimes on accident history.)

Ask students why it is so important for all traffic to obey traffic signs and signals. Be sure students bring out that other drivers don't expect — and shouldn't have to expect — traffic to run through the "stop" mandate and hit them.

Direct students to page 3-4 which illustrates two- and four-way intersections. Ask students how traffic should move through the four-way intersection (all traffic takes turns). Now ask how this differs from a two-way stop (must wait for all crossing traffic to clear before starting).

In the discussion, be sure that two points are clearly understood:

1. Bicyclists must obey all traffic signs and signals.

2. If in doubt, yield. Sometimes drivers don't even see bicyclists, and some drivers don't know that bicyclists are part of the traffic pattern and deserve their turn at stop signs. It may make you angry, but let the car go through. If there is an accident, you, the bicyclist, will be hurt.

This can be a very lively discussion. Students often find it difficult to believe that, at night, bicyclists, pedestrians, and even some motor vehicles can be nearly invisible. Discuss why this makes night riding so dangerous.

When discussing "compensation" for poor visibility, it may be useful to ask students to imagine themselves completely invisible.

b. Mechanical failures can cause bicycle/motor vehicle accidents:

1) a failure can throw the bicyclist off his intended course

2) a mechanical inadequacy can fail to keep a possible accident from happening

5. Roadway surface condition.

a. Poor roadway surfaces decrease the fun and convenience of bicycling.

b. Poor conditions are dangerous because they may cause bicyclists to lose control of their bikes or to ride in a more dangerous location to avoid the poor surface.

6. Visual obstructions.

a. Visual obstructions are dangerous because they can keep you from seeing (detecting) something important.

b. Visual obstructions are part of a great many accidents because riders do not have time to properly react to hidden dangers.

7. Weather.

a. All weather conditions can present some kinds of hazards to safe bicycling, although some are obviously worse than others.

b. A bicyclist must be willing and able to adjust all aspects of his riding to accommodate the weather.

INSTRUCTIONAL STRATEGIES

Ask students how a bicycle in poor condition can cause accidents.

Examples of this are:

1. poor brakes which provide braking inadequate to avoid a sudden danger
2. missing lighting which keeps the bicyclist from being seen by a driver who hits him from behind.

Ask students to name dangerous roadway conditions. Examples include surface breaks, cracks, or potholes; loose gravel, oil spills or wet leaves; inadequate or missing shoulders.

Ask students how these conditions make bicycling more dangerous.

Ask students to name things which can act as visual obstructions. Examples include parked cars, standing traffic, trees and bushes, buildings, glare from headlights or the sun.

Ask students how visual obstructions make bicycling more dangerous.

Ask students to give examples of how various weather conditions affect bicycling safety. Be sure students include:

1. Rain - slippery road surface; longer distance to brake; impaired visibility
2. Snow - all the above plus glare
3. Fog - impaired visibility
4. Bright sun - glare
5. Deep clouds - impaired visibility
6. Darkness - impaired visibility.

8. Operator behaviors.

   a. In an accident situation, it is important to know who did what — or who didn't do what.

   b. To find out how the accident occurred, you have to know why the motorist and bicyclist entered the accident scene the way they did and what they saw, decided, and tried to do just before the crash.

   c. These behaviors must be considered in context — those conditions listed above.

E. Finally, the detectives study completed Accident Reports from hundreds of accidents to try to figure out what causes bicycle/motor vehicle accidents.

F. The detectives were successful. They were able to determine the causes of ten major accident types. During the remainder of the course, we will study each accident type to determine how to prevent it.

II. The Decision Making Process

A. Most traffic accidents occur when people make bad decisions.

B. If people would make better decisions in traffic situations, there would be fewer accidents.

C. Being safe in traffic involves making good decisions based on seeing and understanding situations correctly.

D. One way to make better decisions is to always follow a Decision Making Process.

In this instance, "do" includes searching for hazards, detecting them, deciding what to do, and actually moving.

This is very important in accident investigations. Therefore, the detectives always try to interview the accident victims.

Remind students that this is not an easy task. Accidents happen in many different ways and many of the factors listed above happen together to cause accidents.

Ask students to give examples and consequences of good and bad decisions they have made. Explain that the examples do not need to be traffic or bicycle related. Possible examples include:

- o Decided not to do the dishes when asked.
- o Decided to stay up very late on a school night.
- o Decided not to do his homework.
- o Decided to do odd jobs to earn money.
- o Decided to learn to play an instrument.

Now bring the discussion to bicycle related decisions such as:

- o Decided to ride at night although the bike had no light.
- o Decided to ignore a stop sign.
- o Decided not to hitch a ride on a truck.

Ask students why this is true.

Ask students why bicycling would be safer if everyone (motorists and bicyclists) used the same decision making process. If students have trouble with this concept, use a concrete example as below.

E. The Decision Making Process that will work best in helping you make better decisions while bicycling involves four steps:

1. Search - detect important clues. This means that you should always search your environment for possible hazards so that you have the most available time to react.

2. Predict - figure out what might happen. This means you try to think what other drivers might do and how those actions could affect you.

3. Decide - figure out what you should do. This one is obvious. You must figure out what is the safest way for you to do something.

4. Act - do it in the safest way.

INSTRUCTIONAL STRATEGIES

Direct students to page 3-5 in their workbook which contains a diagram of an accident.

Ask students to search the picture to find important clues as to why bicycling might be dangerous here or might cause an accident. Be sure students note the obvious clues, an intersection with a two-way stop.

Now ask students what they think the automobile driver probably did. Be sure students understand that since the motorist didn't have a stop sign, he probably went straight through the intersection.

Now ask students what they think the bicyclist probably did. For the bicyclist to be in that position, he almost certainly ignored or ran the stop sign.

Now ask students if there was anything the motorist or bicyclist should have done to prevent this accident. Be sure students note the obvious: bicyclists must obey all traffic signals and signs.

Explain to students that they have just followed a kind of decision making process. Direct students to page 3-6 which lists the four steps.

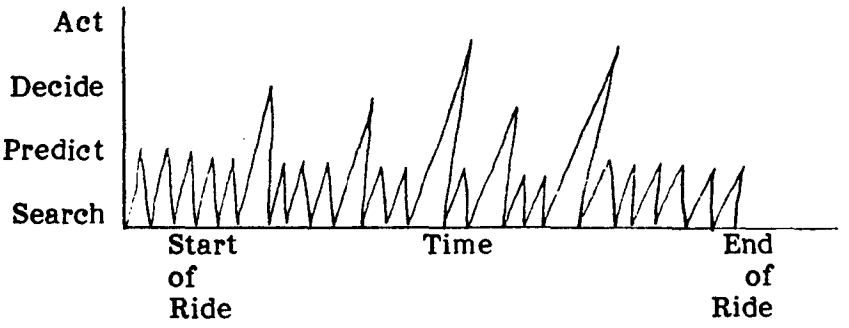
Go back over the accident above. Have students pretend they are the bicyclist coming up to the intersection. The first thing they should do is search for important clues.

Remind students that they performed this step as well when they determined that the motorist would go straight through the intersection.

Now ask students, if they were the bicyclist, what should they do as they come to the intersection. This is the third step — decide the safest thing to do.

Finally, the bicyclist can act. In this case, the safest (also the legal) thing to do is to stop and wait until the way is clear. That is the action.

Draw the following graphic illustration on the chalkboard. It is very important that students understand that a bicyclist must always search his environment and predict what others will do, the first two steps of the decision making process. Occasionally, the prediction becomes one of danger and the bicyclist must decide if he must change his riding behavior. Sometimes, the bicyclist will even have to act to avoid a danger.



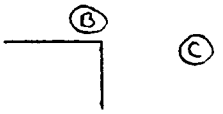
CONTENT

INSTRUCTIONAL STRATEGIES

While a few students role play the following situations, have the remainder of the class work through the process alone. After each role play, discuss the answers. (Have students complete the forms "Making a Decision" on pages 3-6 through 3-8 to direct the discussion.)

Role Plays:

Situation 1 - Mr. Davis was driving home from work. He came to an intersection with a four-way stop. He looked but he didn't see another car. Jim had just finished delivering his newspapers. He was tired. He approached the same intersection on his bike. He arrived shortly before Mr. Davis. He saw the car but couldn't get Mr. Davis' attention.



Situation 2 - Betty was riding her bicycle. As she approached a signalized intersection, she saw that she had a green light. Then she heard a siren.

Situation 3 - Janet had just gotten her driver's license. As she pulled up to an intersection with a four-way stop, she saw Bill on his bicycle, stopping. As long as Bill was stopped, Janet decided it was safe to go through the intersection.

CONTENT

III. Case Number 1: Ride Out Driveway

A. Situation: Detective Wheel has just been to the scene of an accident. He interviewed the accident victims and has filled out his accident report.

B. So many children have accidents when they ride out of a driveway or alley into the path of a motor vehicle that Detective Wheel has given a name to this type of accident: Ride Out Driveway.

C. This type of accident usually happens at the driveway of a private house. But this type of accident also happens at driveways of business parking lots and at alleys.

D. This type of accident often happens close to the bicyclist's home at a driveway with which he is very familiar. Often, these accidents occur when a bicyclist is riding out of his own driveway.

E. The safety rule which could prevent this type of accident is: Before riding into a street, always stop, look left-right-left, and if no cars are coming each time you look, go.

INSTRUCTIONAL STRATEGIES

Display slide 3-1 (very busy street). Ask students where they believe the greatest number of bicycle/motor vehicle accidents take place. Here?

Display slide 3-2 (residential street). Or here? Emphasize that although many students assume that the greatest risk is found on busy streets, the bicyclist is very, very often hit on a quiet, residential street. Ask students why this is so. Answers should include:

1. Most bicycling activity takes place in these neighborhoods.

2. Because the area is quiet and very familiar, bicyclists are often less careful when riding near home.

3. Residential neighborhoods have more uncontrolled intersections and areas that act like intersections, such as driveways.

4. Many of these intersections lack good visibility.

Display slide 3-3 (residential driveway). Students may be surprised to know that one of the most risky of all places is their own driveway.

Now direct students to the Accident Report Form #1 in their workbook. Take time to "walk through" the report so that students understand the type and location of information.

Display slide 3-4 (the accident diagram). Be sure all students understand the direction of traffic flow in all traffic lanes depicted. Discuss the accident and determine why the accident occurred, i.e., the bicyclist rode out into the street without stopping and searching for vehicles. The driver did not have enough time to see and react before the collision.

Hang the first poster: Ride Out Driveway.

You will need to emphasize this point since children do not realize that traffic areas or situations with which they are very familiar can be dangerous. Very often they are less careful when riding near home.

Emphasize that this rule is good common sense. It is the law that anyone entering a street from a driveway must yield to approaching traffic — and besides, failing to yield often leads to accidents and serious injury. The safety rule of Stop, Look Left-Right-Left would insure that bicyclists would be able to see (and be seen by) approaching cars and be able to avoid any conflict or crash.

CONTENT

F. These accidents occur within two separate situations:

   a. Situation 1, no visual obstructions.

   b. Situation 2, visual obstructions.

G. The more specific safety rule is: Move out on your bike to a safe position from which you can clearly see the entire roadway; stop, look left-right-left, and if no cars are coming each time you look, go.

H. It is the bicyclist's responsibility to stop and look left-right-left. He cannot (and should not) count on a motorist seeing him in time to stop.

INSTRUCTIONAL STRATEGIES

Display slide 3-5 (driveway onto street, no obstructions). Ask students what the bicyclist should have done.
Answer: stop, look left-right-left, wait until vehicle had passed.

Ask students why they think the motorist didn't stop for the bicyclist.
Answer: motorist didn't expect a vehicle to shoot out from the driveway and didn't have time to react.

Display slide 3-6 (normal searching pattern of bicyclist). Ask students to describe what the bicyclist can see.
Answer: a motor vehicle, coming from the bicyclist's left.

Display slide 3-7 (moving vehicle hidden by parked car). Ask students what the bicyclist can see now.
Answer: only a parked car. The moving vehicle is hidden by the parked car.

Display slide 3-8 (moving vehicle hidden by large tree). Ask students what the bicyclist can see now.
Answer: no vehicle. Now the vehicle is hidden by a large tree.

Explain that it may be necessary to move beyond a visual obstruction before searching.
Display slide 3-6 again. Point to the position where the bicyclist should stop before looking left-right-left. Display slide 3-7. Ask students where the bicyclist should stop before searching. Point to the spot. Repeat the process using slide 3-8. Discuss the differences.

Display slide 3-9 (the normal searching pattern of a motorist). Ask students to describe what the motorist can see.
Answer: a parked car and a low wall.

Display slide 3-10 (bicyclist hidden by parked car). Ask students if the motorist can see the bicyclist now.
Answer: no, the motorist's view is obstructed by the parked car.

Emphasize that even if there are no visual obstructions, the motorist is not expecting a bicyclist to suddenly appear and may not be able to react in time to stop from hitting him. A motorist is most concerned with things right in front of him and often fails to notice bicyclists off to the side.

Display slide 3-11 (residential driveway). Have students list five ways that car/bike accidents can be eliminated. Ask students what they can do by changing their present practices. What instruction could they or their parents give them or their younger brothers or sisters? What can they do to the environment to make this type of accident less likely? You may want to list answers on the chalkboard.

CONTENT

Possible answers include:

Changes in your actions:

- o Always move out on your bike to an area from where you can clearly see the entire roadway and STOP.
- o Always look left-right-left before entering the road.

Vehicle change:

- o Mount a pole and pennant on the bicycle to make it more easily seen by motorists.

Changes to the environment:

- o Cut back shrubs and trees that obstruct motorists' view of driveway activity.
- o Ban parking for 40 feet before driveways.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 4 — Communicate and Be Predictable

OVERVIEW: The two interlocking themes of this lesson are communication and predictability. Whenever bicyclists are in traffic, other drivers must know what they are going to do. Bicyclists can use hand signals to communicate; they also communicate unintentionally by their speed, position in the road, and whatever else they do. (Bicyclists must also "be communicated to" by the other drivers around them.) But to communicate effectively, bicyclists must be predicatable. Their signs and signals must reliably connect with subsequent actions, and they must ride according to the rules of the road that other drivers follow.

An essential part of communication is being seen in the first place. This is a critical point in Accident Case Number 2 — Motorist Exiting Commercial Driveway. The bicyclist is riding in the street or on the sidewalk, and is usually hit by a motorist who pulls out after checking all motor traffic and never seeing the bicyclist. The bicyclist can be more noticeable — by riding in the proper place and by being brightly clothed — but his ultimate way of avoiding these accidents is to receive the communication clues of the drivers and only pass in front of motorists who are clearly going to wait.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Describe ways bicyclists can communicate with other highway users
2. Describe how obeying traffic laws can help make one predicatable
3. Discuss problems caused by assuming that one is always seen
4. Describe hazards of passing commercial driveways and how to avoid being struck

EQUIPMENT: Overhead projector

MATERIALS: Prepared transparencies

CONTENT

I. The Motorist

A. When someone is learning to drive a motor vehicle, he is taught to search his environment. He learns to search for other cars and trucks, traffic signals and signs, pedestrians. . . .and potholes.

B. Since up to just a few years ago there were very few bicycles on the road, motorists have not been taught to search for bicycles.

C. What bicyclists there are on the road often pop up in unexpected locations. . . .on the wrong side of the road, from between parked cars, etc. The result is that motorists do not expect to see bicyclists — and they don't search for them in any organized fashion.

D. Sometimes a motorist can look right at a bicyclist and not see him. It is as if the motorist was blind to bicycles and could only see cars and trucks.

1. People see what they expect to see. If a motorist doesn't expect to see a bicycle, he may not register it even when looking directly at it.

2. A motorist may be so busy looking at other things, he misses a bicycle.

3. A visual obstruction can prevent a motorist from seeing a bicyclist until it is too late to react.

4. The motorist may simply not be paying attention.

II. The Bicyclist

A. A bicyclist can never take for granted that a motorist has seen him.

B. What can a bicyclist do to be safer?

1. The bicyclist should make every attempt to communicate with motorists.

INSTRUCTIONAL STRATEGIES

This is very important for students to understand. Children take for granted that motorists see them. They figure that on a bicycle they are very conspicuous and if they can see a motorist, he can obviously see them. This is not true.

Direct students to pages 4-1 through 4-5 in their workbooks. Have students complete the exercises and discuss.

For example, the motorist may be looking for a specific house number, or watching for an opening to make a left turn, or just watching other traffic.

Examples of visual obstructions include: trees, shrubs, buildings, parked cars and glare.

Emphasize that in a bicycle/motor vehicle accident, the bicyclist is going to get hurt, not the driver. So the bicyclist has the most to lose and must therefore make extra efforts to prevent such an accident.

Have students turn to the Glossary in their workbooks. Ask what the word "communication" means.

Ask students why it is important for roadusers to communicate with one another. Answers may be given as situations. Possible examples include:

1. If other drivers know you are there, they will give you enough room to move safely.

2. The bicyclist must drive defensively.

C. There are several ways a bicyclist can communicate with other road users:

1. Using hand signals

2. Making eye contact

3. Wearing bright clothing

4. Being where the motorist will expect him

5. Follow the rules of the road

D. By communicating to other drivers what he is going to do and by following traffic laws, the bicyclist is more predicable.

E. Being predictable is the best way a bicyclist can communicate his actions. If a motorist sees a bicyclist, he will be able to determine what the bicyclist will do so long as the bicyclist is predictable.

2. If the driver behind you knows that you are going to stop, he will know to stop or go around you.

3. If a bicyclist is riding behind a driver signalling for a right turn, the bicyclists knows not to pass the driver on the right as the driver slows down.

Have students turn to the Glossary in their workbooks. Ask what the term "defensive driving" means. Emphasize four aspects:

1. Be attentive.

2. Predict what other roadusers are going to do.

3. Assume you are invisible unless proven otherwise.

4. When in doubt, yield — even if you "deserve" the right-of-way.

Ask students to describe how each of the following behaviors help bicyclists communicate.

Discuss the three basic rules for proper positioning:

1. Always ride with traffic.

2. Ride as far to the right as reasonable when going straight ahead or making a right turn.

3. Carefully search behind and move to the left before making a left turn.

Have students look up the word predictable. Ask what the term means.

Ask students why it is so important that roadusers be predictable. Answers should include: If everyone were predictable, you would know. . . .

1. Roaduser positions (riding on the right with traffic; in the proper lane for turns, etc.)

F. But a bicyclist must never take for granted that a motorist sees him. So in addition to communicating one's actions and being predictable, the bicyclist must drive defensively.

G. Try to determine what the motorist is going to do and react accordingly. How can this be done?

1. Be alert, search your environment.

2. Look for specific clues — turn signals, movement of the motorist's head, the lane the vehicle is in (for example, is it a turn-only lane?), the vehicle is slowing, etc.

2. What roadusers are going to do (bicyclist gives the sign for slowing down, will slow down; motorist turns on right turn signal, will make a right hand turn.)

3. What roadusers should do (vehicles at intersection have red light, should stop.)

Remind students that this is the second thing mentioned that a bicyclist should do to be safer.

Emphasize the need for driving defensively. Display the cartoon pictures of the rules for defensive driving. Discuss each rule in turn.

CONTENT

III. Case Number 2: Motorist Exiting Commercial Driveway

A. Situation: Detective Wheel is sitting in his office, reading the accident report of the bicycle accident he had seen that morning.

B. This type of accident happens when a motor vehicle drives forward out of a driveway and strikes a bicyclist.

C. This type of accident usually happens when a motorist is pulling out of a commercial driveway or alley way such as those found at shopping centers.

D. The presence of visual obstructions can make this type of accident more likely.

E. Bicyclists must search for clues to danger at each commercial driveway no matter how familiar they may be with it. Clues to danger include:

1. Visual obstructions: warns the bicyclist that he may not be able to see a motorist or that a motorist may not see him.

2. Motor vehicles stopped in driveway/alley: warns the bicyclist that motorists are probably watching for a break in traffic to pull out and <u>not</u> watching for bicyclists.

INSTRUCTIONAL STRATEGIES

Direct students to study the Accident Report Form #2 in their workbooks. Ask students what caused the accident.

Hang the second poster, Motorist Exiting Commercial Driveway.

Display transparency 4-1 which shows a vehicle preparing to exit a commercial driveway. Ask students why this can be a dangerous situation for a bicyclist. Possible answers include:

1. The driver isn't paying attention. He is thinking about what he just bought, etc.

2. The driver is paying attention to his passengers instead of driving.

Now place overlay A, which shows traffic, onto the transparency. Ask students why this makes the situation more dangerous. Students should realize that motorist may be so busy watching the traffic for an opportunity to pull out that he may not even notice the bicyclist.

Now place overlay B, which shows a visual obstruction, onto the transparency. Again ask students why this makes the situation more dangerous. Students should note that since the motorist's view is obstructed, even if he searched for a bicyclist, he wouldn't see him.

Remove overlays. Ask students what a bicyclist should do when driving on busy city streets like this one. Answers include:

1. Realize that it is dangerous to ride through an intersection of a driveway and street.

2. Always search for a motor vehicle that may be pulling out into traffic.

3. If there is a parked car or building or tree or whatever, which blocks your view of a driveway, slow down and be prepared to stop.

4. Do not assume that a motorist sees you and is going to stop. The motorist does not expect to see a bicyclist and is watching traffic so hard that he probably won't see one.

As you name each of the clues to danger, ask students what each clue should tell them.

3. Motor vehicles exiting driveway/alley: again warns bicyclist that the driver is probably watching traffic, not searching for a bicyclist.

4. Person sitting in a motor vehicle in driveway/alley: if the engine is running, warns the bicyclist that the driver may pull out abruptly.

5. Direction of motorist's gaze: if looking away, warns the bicyclist that the motorist almost certainly doesn't see him.

6. Sound of engine running: warns the bicyclist that cars he thought were parked may be preparing to pull out.

Emphasize that even if the motorist is looking at the bicyclist, he doesn't necessarily see the bicyclist.

Display transparency 4-2 and ask students why either a) wrong-way riding or b) riding on the sidewalk would make this type of accident more likely. (Use cut-out of bicyclist to illustrate problem.) Students should realize that a motorist is not expecting a vehicle to be coming in the wrong direction or to be anywhere but in the roadway so he is unlikely to see it. In addition, motorists are likely to drive slightly into the roadway before they ever look in order to have a better view of traffic. Many cities make it illegal to ride on sidewalks in business districts where driveway intersections like this are found. Be sure students know the law in their city or town.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 5 — Driving a Bicycle

OVERVIEW: Bicycles have been regarded as children's toys, but they are a real form of transportation, have a legitimate place on the roads and deserve to be respected by other roadway users. In fact, bicycles are legally considered true vehicles in most states, although there are some legal provisions specially for bicycles.

As operators of vehicles, bicyclists have the duty to ride responsibly, predictably and safely. Motorists must learn how to drive and pass a test showing they know the rules of the road as well as how to operate a car before they are allowed on the public roads. Bicyclists don't have such formal requirements, although maybe they should; but this course will teach them how to properly ride on the roads, how to best ride safely and will be like the Driver's Ed they will get in six or seven more years.

One of the key ways bicyclists can show they are responsible roadusers is to always "ride right" — never to ride the wrong way facing traffic. Although wrong-way riding is very common and some people think it's safer, they are wrong. It is unsafe, because it puts the bicyclist in a position where his riding generates conflicts with other drivers and puts him where others don't expect to see bicyclists and don't look; besides, it is illegal. Accident Case Number 3 — Wrong-Way Riding — describes the various ways bicyclists riding the wrong way are very frequently struck by motorists.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Recognize that as a bicyclist, he/she is a legitimate part of traffic
2. Understand why he/she should always ride with traffic, never facing traffic

EQUIPMENT: 16mm film projector; slide projector

MATERIALS: Film: "Bicycle Drivers Don't Have to Have Accidents;" Prepared slides

PREPARATION: Preview the film before presenting to class. Assign workbook section on Traffic Signs. If pretest identifies students that do not know this material, some time can be given for review. Contact your police department for information on your town's bicycle enforcement program. You may want to have a policeman visit and speak to your class about the importance of obeying traffic laws, signs and signals.

CONTENT

I. Changing Riding Patterns

A. A few years ago, bicycles were usually ridden by school age children, to and from school, to visit friends, or to run errands. These were very short trips within one or two miles from their homes.

B. Today, people of all ages are interested in riding a bicycle.

C. The bicycle is now a means of transportation and a recreational vehicle.

D. Today the bicyclist may ride on busy city streets, on highways, or on isolated roads.

E. The bicyclist may even go on long trips. He can go 100 miles a day and average 20 miles per hour.

II. The Bicyclist as a Driver

A. Anytime you ride your bicycle on the street, you are a driver, just the same as if you were driving an automobile or truck.

B. All vehicle drivers must know and obey the law. Bicyclists and everyone else sharing the roads will be safer when all bicyclists know and obey the traffic laws and when all motorists realize that bicyclists have a right to the responsible use of the roads.

INSTRUCTIONAL STRATEGIES

Show film: "Bicycle Drivers Don't Have to Have Accidents"

The film, "Bicycle Drivers Don't Have to Have Accidents," produced by Aims Instructional Media Services, Inc., is a contemporary film about bicycle safety that is both entertaining and educational. Many of the issues and concepts discussed in the film are highly relevant for bicycle safety. However, the film should be considered an introduction only, since each of these issues and concepts will be studied in detail in later units. Therefore, the teacher should not attempt to initiate a detailed discussion of the film.

Display slide 5-1 of a variety of toys including bicycles. Emphasize that the bicycle was considered a child's toy.

Ask students:

1. How many of your older brothers or sisters ride? Mothers? Fathers? Grandparents?

2. Why are so many people riding bicycles? Answers should include:

   a. Exercise
   b. Fun
   c. Ecology, i.e., clean air
   d. Inexpensive, i.e., doesn't use gasoline, needs little upkeep, etc.

Direct students to the exercise "Riding Why" in their workbooks.
Discuss the various reasons people ride bicycles.

Display slide 5-2 of a variety of vehicles including bicycles. Emphasize that the bicycle should not be considered a toy. The moment that the bicycle is ridden onto the roadway, it becomes a part of the traffic pattern. It becomes a vehicle with all the associated rights and duties. This is legally the case in most states, although all states have some traffic laws which only apply to bicycles.

Display slide 5-3 which shows the following on a red background:

THE BICYCLE IS A VEHICLE

and the following on a green background:

SO YOU ARE A DRIVER

C. When you are riding your bicycle in the roadway, you are a legitimate part of the traffic. If you use your bicycle properly, you deserve your place on the road, and other drivers should respect your rights to use the road.

III. Where Should You Ride

A. To use your bicycle properly, you must ride in a safe position on the roadway.

B. To be in a safe position, the bicyclist must be:

1. where the motorist expects to see him
2. able to maintain control of his bicycle
3. able to travel at a safe speed, and
4. able to safely make turns

INSTRUCTIONAL STRATEGIES

Describe the process for becoming a licensed automobile driver:

1. Attend driver education classes at school.
2. Obtain State's Driver's Manual to study laws and practices for good drivers.
3. Pass driver's test (written and on-road).
4. Receive license (pay State fees).

Discussion questions:

1. Why do automobile drivers have to be licensed?
   a) To be certain the driver is physically capable of controlling a vehicle on the road and in traffic.
   b) To be certain the driver knows the rules of the road and the laws that apply.
2. There are several restrictions on who may drive a car: for example, drivers must be about 16 or older; must pass a driver's test and an eye test, etc. Should there be restrictions for bicyclists?
3. If an automobile driver breaks the law, he may be fined or even lose his license. Should this be true for bicyclists?

Special note to the teacher: If there is a bicycle enforcement program in your town, be sure students are aware and understand why the program is important. You may arrange for the police to send a representative to speak to your class.

Remind students of the need to be predictable. When motorists see a bicyclist, they try to figure out what he is going to do by his position on the roadway.

C. The safe and legal procedure is to always ride on the right hand side of the roadway with traffic.

D. The specific rule is to always ride as far to the right as is practicable. This means a bicyclist should ride far to the right most of the time, but if there is a good reason to ride farther left, he should do so.

INSTRUCTIONAL STRATEGIES

Special note to the teacher: Many adults have trouble with the law that states bicyclists must ride with traffic. Do not concern yourself with this problem immediately. The discussion on Accident Case Number 3, Wrong-Way Riding which follows will go into this problem in great detail.

Now explain that you are going to show a series of slides and that the students are to decide which of the bicyclists shown are riding in a safe position. Direct the discussion to cover two points:

1. How far right is "practicable" — and what does the word mean exactly?

2. What are some good reasons for moving left?

Display slide 5-4 (riding against traffic). Ask, is the bicyclist in a safe position?
Answer: No. This bicyclist is riding against the flow of traffic. This is illegal and unsafe.

Display slide 5-5 (riding in middle of lane). Ask, is the bicyclist in a safe position?
Answer: No. This bike rider is on the right side of the road. However, he is taking up the entire lane in this position. The bicyclist is expected to ride as far to the right as is practicable (that is, possible to perform safely). In this case it is safe for him to ride farther to the right. . .therefore he is not in the correct road position.

Display slide 5-6 (riding correctly). Ask, is the bicyclist in a safe position?
Answer: Yes. This bicyclist is riding in a safe position. He is quite conspicuous, and as far to the right as needed for a motorist to pass with assured distance. If he were any closer to the edge he might endanger himself by slipping off of the road edge and crashing in the gravel.

Display slide 5-7 (riding on an unstable surface). Ask, is the bicyclist in a safe position?
Answer: No. This bicyclist is close to the road edge on an unstable surface. Although he is out of direct traffic, he could lose control and endanger himself, or cause a passing car to swerve. If the bicyclist were two feet to the left it would be safer for both himself and the approaching traffic.

Display slide 5-8 (two bicyclists). Ask, which bicyclist is in the safer position?
Answer: Bicyclist in front. The bicyclist in front is in the better position. The bicyclist in the rear is a bit too close to the concrete edging. It is possible for her pedal to hit the curb and cause her to spill into traffic. In this instance, "as far to the right as practicable" allows the bicyclist to ride within the actual traffic lane. The bicyclist who feels uncomfortable in the traffic lane would be safer walking along the protected sidewalk or riding on the sidewalk if it is legal and if it is not dangerous to pedestrians.

CONTENT

INSTRUCTIONAL STRATEGIES

Display slide 5-9 (riding through a crosswalk). Ask, is the bicyclist in a safe position?
Answer: No. It is illegal and risky to ride a bicycle through a crosswalk. The bicyclist is not following a predictable road channel. The motorist may be confused or surprised by this movement. This often results in injury to the bike rider.

Display slide 5-10 (bicyclists riding in parking lane). Ask, are the bicyclists in safe positions?
Answer: Yes. These bicyclists are in the parking lane at the extreme left side. They are quite conspicuous and their movement is predictable. If they were farther to the right, they would have to dart in and out between parked cars, creating confusion and risk to themselves and overtaking motorists. It is also legal and proper for the bicyclist to be just to the left of the white line.

Display slide 5-11 (riding far to the left). Ask, are the bicyclists in safe positions?
Answer: Maybe. If these bicyclists are preparing for a left turn they are in the correct position. However, if they intend to go straight they are assuming a position too far to the left, endangering themselves and hindering traffic.

CONTENT

IV. Case Number 3: Wrong-Way Riding

A. Situation: Detective Wheel arrives at the scene of an accident. The ambulance has taken the bicyclist to the hospital. He interviews the automobile driver and fills out his report.

B. One of the most basic rules of the road is that all vehicles must move in the proper direction.

C. The bicyclist is safest moving with traffic, where traffic is expected on the road, just the way all other vehicles move.

D. Bicyclists are not safer riding against the traffic flow so that they can "see the cars."

E. The left side of the road is the wrong side of the road for four reasons:

1. All traffic signs are blank and backwards on the wrong side of the road. Traffic signs are full of important information for the bicyclist. If you can't see the information, you could get into trouble.

2. There are no STOP signs on the left side of the road at intersections. STOP signs are very important and it can be very dangerous to miss or ignore them.

3. Since the bicyclist and motorist are approaching each other head-on, the speed of the wrong-way bicyclist combines with the motorist's speed for a greatly increased closing speed, which decreases reaction time and increases the force of impact if there is a collision.

4. Riding on the wrong side causes conflicts with vehicles turning from the bicyclist's road and with all vehicles coming onto or across the bicyclist's road. These conflicts complicate the normal traffic pattern and are especially dangerous because the motorist is unlikely to be prepared to deal with bicyclists coming from the wrong direction.

INSTRUCTIONAL STRATEGIES

Direct students to study Accident Report Form #3 in their workbook.
Display slide 5-12 (the accident diagram). Discuss the accident and determine why it occurred, i.e., the bicyclist was riding on the wrong side of the road.

Tell students that so many motor vehicle/bicycle accidents are caused by the bicyclist riding on the left that an accident type has been named "Wrong-Way Riding." Hang the third poster on the bulletin board.

Ask students what this rule of the road is.
Answer: Ride on the right hand side of two-way roadways moving with traffic.

Special note to teachers: Some bicyclists (including adults) believe that it is safer to ride on the left hand side facing traffic. It is important that students understand why this is <u>not</u> true.

Recent research has shown the dangers of wrong-way riding:

1. All traffic signs are blank and backwards on the wrong side of the road.

2. There are no STOP signs on the left side of the road at intersections.

3. Increased closing speed greatly increases the force of impact, and thus injury severity if there is a collision.

4. Riding on the left generates conflicts with traffic at intersections or driveways which would not otherwise occur and which often result in accidents.

5. Because bicyclists are not expected on the left, drivers don't search well there; they may fail to see the bicyclist entirely or not see him soon enough to avoid an accident.

5. Riding on the wrong side of the street is especially dangerous because motorists do not expect a vehicle to come at them head-on in their traffic lane. Motorists have strong expections about where they should look for potential hazards, especially approaching vehicles. They are startled when an unexpected bicyclist appears and often have no time to react to avoid the accident.

This is particularly true when motorists are turning onto your roadway. You are in just the place they "know" can't have traffic coming toward them, so they often don't even look towards you until it is too late.

INSTRUCTIONAL STRATEGIES

Display slide 5-13, searching patterns of motorists. Explain that the shaded areas show where a motorist expects to find hazards and looks hardest.

Display slide 5-14 (one riding right, one left). Ask students which bicyclist is safer. (A)
Display slide 5-15 (one riding right, one left). Ask students which bicyclist is safer. (A)
Display slide 5-16 (one riding right, one left). Ask students which bicyclist is safer. (A)
Ask students to explain why bicyclist A is always safer.
Answer: The bicyclist is riding on the right with traffic. The motorist's normal searching pattern would include the bicyclist.

Display slide 5-17 (vehicle turning into bike lane). Ask students which bicyclist is safer. (A)

Ask students how they can tell if they are on the wrong side of the road.
Answer: You are on the wrong side if the front of your bicycle and the front of the cars in the same lane are moving toward each other.

Display slides 5-18 through 5-21 and discuss the types of accidents that occur when a bicyclist rides facing traffic. In each case, the discussion should proceed as follows:

Example for slide 5-18.

- o Have students Search for Clues.

  1) Right turn signal is flashing.
  (Ask students if the turn signal is on. Can you be sure the motorist is turning? (No) If the turn signal is not flashing, can you be sure the motorist is not turning? (No) What other signs can tell you if a motorist is going to turn? (Slowing for no other apparent reason, pulling to the left or right of normal travel lane.))

  2) Driver's normal scanning pattern will miss bicyclist.

- o Have students Predict what the motorist will do.

  1) Turn right onto cross street.
  2) Hit bicyclist.

- o Have students recognize how difficult it is to prevent this accident.

  1) Slow down and swerve right into traffic (this can be extremely dangerous).

  2) Get far left, onto the sidewalk, if possible, and stop. (Emphasize that there may not be time to make either of these moves.)

F. Motorists making right turns on red create special problems for bicyclists riding wrong-way on the left.

INSTRUCTIONAL STRATEGIES

- o Have students Decide what could have avoided this accident (or near accident).

  Answer: Ride on the Right.

Display slide 5-22 (motorist preparing to make a right turn on red. Ask students to list the clues that tell them the motorist is going to make a right turn on red.

- o Light is red for motorist.
- o Right turn signal is flashing.
  (Remind students that the absence of a turn signal doesn't necessarily mean he isn't turning.)
- o Vehicle is close to right curb.
- o Driver is looking left for a gap in traffic.

Display slide 5-23 (motorist turning right into bicyclist's lane). Ask students what is likely to happen. Why?
Answer: Motorist will make right turn and collide with bicyclist.

Discussion question:

Have you ever ridden on the wrong side? Why?

Write answers on the chalkboard.

Answers will likely include:

1) The bicyclist thought it was safer to ride facing traffic.

2) The bicyclist thought he was as visible on one side of the street as the other.

3) The bicyclist was overconfident in his ability to detect and avoid potential hazards.

4) The bicyclist wanted to save time or reduce travel distance.

5) The bicyclist didn't want to cross a busy road twice.

6) "My parents told me to."

When all answers have been listed, discuss what is wrong with each of the answers. For example, for:

1) It's very dangerous for the five reasons stated in this lesson:

   - Traffic signs are blank and backwards.
   - No STOP signs
   - Force of impact is increased as is injury severity
   - Travelling wrong-way produces unexpected and hazardous conflicts
   - Motorist does not expect to see a bicyclist until too late.

CONTENT

2) You are as visible on either side, but motorists don't look on the wrong side as often or as carefully. So more often you won't be seen when riding on the wrong side.

3) By riding on the wrong side you cause extra hazards to avoid, like conflicts with turning cars, approaching cars, approaching bicyclists. Also, you may not see stop signs or signals causing serious trouble. (You should keep track of traffic even when you ride on the right. Look behind or use a rear-view mirror.)

4) If you're saving just a fraction of a block and it's legal to do so, ride on the sidewalk instead. In any case, find some other way than to ride wrong-way. Any little savings isn't worth it because you'll be telling yourself and motorists that you don't belong on the roads and you can't be trusted to ride legally and predictably.

5) If the road is that busy, perhaps you shouldn't ride on it at all. Find an alternate route that uses quieter streets.

6) This time they're wrong. Try to explain to them that it only looks safe. Actually, it causes many extra problems. In addition, it's not legal and not in keeping with the image of maturity and responsibility you want to project.

Have a group of students take a poll of fifth and sixth graders asking, "On what side of the street should you ride your bicycle?" After students have tallied the responses, discuss the results with the class.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 6 — Presentation of Rules and Laws

OVERVIEW: When on a bicycle, even young children become part of traffic. There are rules, regulations, and common practices which must be followed by all people in traffic. These procedures have been developed over time to provide for the safe and efficient flow of traffic. Some are laws, some are social etiquette; but all should be followed by every person in traffic.

The student workbook has discussions of traffic signs and signals (covered in Lesson 5), rules and laws of the road, and principles of safe bicycling. It is a reference section suitable for self-study and for discussions between students and their parents, many of whom do not understand how bicycles should be used in traffic. This material should be assigned as homework prior to any discussion of the material in class.

This lesson should build on the workbook. The teaching technique, discussion-in-the-round, is used so that students appreciate the need for rules and laws. Throughout the discussion, two concepts should be stressed. The first concept is that bicyclists have the same rights in traffic and the same duties in traffic as motorists, although there are a few exceptions. These exceptions must be made clear to students. The second concept is critically important and should influence the way everything else is discussed. It may be called the FIRST RULE OF BICYCLING: Don't get into accidents. It is important that bicyclists know and exercise their rights in traffic, but such boldness should be tempered by a healthy interest in self-preservation. That is, bicyclists should constantly stay alert to the possibility that motorists — through failure to see them, or misjudgement or even ignorance — will cut across or into their path. Bicyclists must always be ready to recognize such danger and to evade or avoid it.

Accident Case Number 4 — Intersection Ride Out — deals with the case of bicyclists riding straight into intersections without stopping or yielding and being hit by crossing traffic. Sometimes the bicyclist has disobeyed the law by running a stop sign, and sometimes not. But always, the bicyclist has failed to see the approaching vehicle and recognize that it might come into his/her path — a violation of the First Rule of Bicycling.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. List the 19 bicycle rules presented in class
2. Explain why each of the rules is important
3. Describe proper method of riding through intersections

EQUIPMENT: Overhead projector

MATERIALS: Prepared transparencies

PREPARATION: Assign the workbook section on traffic rules to be completed at home prior to the class. Explain that students should discuss the material with their parents.

CONTENT

Bicycle Rules of the Road

1. Bicycles have the same rights and responsibilities as motor vehicle drivers. (Lesson 5)

2. Always ride in the same direction as traffic, as close to the edge of the road as practical. (Lesson 5)

3. Do not ride recklessly because you endanger yourself and others. (Lesson 7)

4. Do not carry passengers unless your bicycle has extra seats.

5. Do not carry packages unless you can keep at least one hand on the handlebars and can see clearly all around you.

6. Never hitch rides by holding on to other moving vehicles.

7. Do not follow other vehicles so closely that you cannot stop if they do.

8. Always stop for stopped school buses when their red lights are flashing.

9. Pull over and stop out of the way of emergency vehicles.

10. Always yield to pedestrians in a crosswalk or when you are riding on or across a sidewalk.

11. Obey all traffic regulations, signs, signals, pavement markings and directions given by police officers or crossing guards. (Lesson 5)

12. To make a right turn: be as far to the right as possible, signal your intentions, search left-right-left for oncoming traffic, and turn when it is safe. (Lesson 8)

13. To make a left turn: always look behind for oncoming traffic, signal your intention, when it is clear, merge to the lane cars use for turning left, and turn when it is safe. (Lesson 5)

14. Come to a complete stop and search left-right-left before entering a street from a sidewalk, driveway or alley. (Lesson 3)

15. Riding after dark is very dangerous; avoid it if you can. If you absolutely must ride after dark, equip your bike with front and rear lights and reflectors and wear light colored clothing with reflective accents. (Lesson 10)

16. Keep your bike in good mechanical order. (Lesson 2)

17. Always pay attention to traffic and road hazards when riding your bike.

18. Avoid riding when road or weather conditions are bad. (Lesson 10)

19. Avoid riding when you are tired or sick.

INSTRUCTIONAL STRATEGIES

Special Note to Teacher: This is the third and last lesson to be taught by the technique "discussion-in-the-round." This technique was chosen to encourage student involvement, so that students themselves recognize and accept the need for rules and laws. Although it is important that students know the rules and laws of the road, study of the accident types has shown that accidents are caused more often by bicyclists who know the laws but disregard them. Therefore, it is essential that these rules are not simply described by an adult for the student to memorize. Using this discussion technique it is possible to use peer pressure to advantage. Students will be much more willing to listen to and hear their peers coming to understand the need for rules than listen to an adult lecture on the need for rules. As before, move chairs into a circle while students are out of the classroom to avoid confusion. When children return, review the rules you have established for this type of discussion.

Remind students that they were asked to study the section Rules for Safety in their workbooks. They were further asked to discuss the information with their parents and have their parents sign the explanatory letter (page). Have students hold up the letter so that you can check for parent signatures. Some parents will have also written in the section "Questions, Comments, Thoughts." You may wish to call on a child whose parent has made such an entry and ask the child to read the remark. This could be one way to begin the discussion.

A second method would be to read a bicycle safety rule (begin with number two) and ask students how the rule can help a bicyclist:

- o communicate with other roadusers
- o be more predictable
- o be much more safe

Discuss each rule or law in turn.

A third method would be to examine the pedestrian flow in the school halls.

- o Is the flow somewhat chaotic or is it ordered?
- o Are there many collisions?
- o If there are a good number of collisions, why is the situation still acceptable?
    - o Traffic is slow
    - o Student pedestrians are very maneuverable
    - o Student pedestrians can stop very quickly "on a dime"
    - o Collisions damage nothing

Now contrast this example with vehicles on the road. If there were no traffic rules, vehicle flow would be totally chaotic, which would lead to many collisions. Why is this not acceptable?

- o Traffic is moving quickly
- o Vehicles are not as maneuverable
- o Vehicles need time and distance to stop
- o Collisions can cause much damage both to the vehicles and to the people

CONTENT

INSTRUCTIONAL STRATEGIES

A fourth and final method to begin or to keep the discussion continuing in a useful way would be to read aloud one of the following story starters and have a student make up an ending. There can be several endings to each story but it is important that the traffic rule alluded to be mentioned and how breaking or keeping the rule affected the bicyclist be emphasized. Specific points to consider are briefly outlined after each story starter.

1. On her way to school one morning, Alice drove on the left side of the street.

   - o Breaking Rule No. 2.
   - o Wrong-way riding is especially dangerous when a vehicle turns into the bicyclist's street.
   - o This type of accident was studied in Lesson 5.

2. As Bill drove down Glenn Avenue, he noticed that the signal light on the corner had been green a long time.

   - o Bill should slow down and be prepared to stop since the light will probably turn yellow. Bicyclists do not have enough time to make it through an intersection on the yellow phase.
   - o Accidents developing out of this situation will be studied in Lesson 7.

3. Betty and her friends were racing on their bicycles in the street. Trying to win the race, Betty didn't stop for the stop sign at Lorraine Street. Another bicyclist was traveling on Park Avenue. He reached the intersection just as Betty did.

   - o Breaking Rule No. 11, Rule No. 17, and Rule No. 3.
   - o Ignoring a stop sign is always very dangerous. In this case, there will probably be a crash.
   - o This type of accident will be studied in this lesson.

4. Jim was late to school. He was driving his bicycle fast. As he came to an intersection, the car in front of him slowed down. Jim drove past the car on the right.

   - o It is probable that since the car slowed down the motorist was beginning a turn. If he makes a right turn, he will hit Jim.

5. Mary wanted to turn right at an intersection. There were no controls on her street at the intersection, so she made a right turn signal and turned. A car coming from the opposite direction turned left at the intersection.

   - o The driver broke Rule No. 12.
   - o Mary didn't search properly or, if she saw the car, didn't predict its motion properly. She should have seen the vehicle, noted that the driver might turn without waiting, and adjusted her course and speed to be able to stop if necessary.

CONTENT

6. Doug was tired after baseball practice. He decided to take a shortcut down Baker Street, a one-way street. Doug was going in the wrong direction.

   - o Breaking Rules No. 2 and 11.
   - o Motorists will not expect to see a bicyclist traveling in this direction. It is possible that by the time a motorist noticed Doug, it could be too late to avoid an accident. There is particular danger from turning onto Baker Street.

Use the technique or techniques you feel will best start the discussion and keep it going. Whatever methods are used, be sure to emphasize the following:

- o Traffic laws make traffic orderly and make it much easier for all drivers to use the streets and highways.
- o Traffic laws help separate users by telling them what they should do in traffic situations to avoid hitting each other or having other kinds of accidents.
- o Traffic laws give meaning to signs, signals and symbols.
- o Traffic laws establish a common communication system among users. Laws tell users what they should do. All users should communicate their presence and actions.
- o Obeying traffic laws help highway users be predictable.
- o Traffic laws were written for and must be obeyed by all highway users, motorists and bicyclists alike.
- o If traffic laws are obeyed, the roadway will be orderly, predictable, and much safer.

CONTENT

II. Case Number 4: Intersection Ride Out

A. An uncontrolled intersection is one at which no traffic signs or signals tell users who has the right to go ahead of another.

1. These intersections are usually quiet with little traffic.

2. These intersections are dangerous because vehicles may appear at just the worst time and strike a bicyclist.

a) At these intersections vehicles may be so quiet a bicyclist can't hear them.

b) The motorist probably won't see a bicyclist since he is looking for other cars.

c) The intersections may have visual blocks so the bicyclist must look very carefully to see a motorist.

3. Watch carefully at any intersection like this and stop if anyone is coming unless the motorist clearly sees you and you <u>know</u> he is letting you go first.

4. The rule for this type of intersection is:

a) The person who gets to the intersection first should be allowed to go through it first.

b) If two people get there at the same time, the one on the right should be allowed to proceed first.

B. A controlled intersection uses signs or signals to direct the flow of traffic. The sign or signal tells users who has the right of way.

C. Controlled intersections may be controlled by stop or yield signs.

1. "Stop" means stop where you can see any traffic, search left-right-left until it's clear, then go across (or turn).

2. There are three different situations you may encounter:

a) Four-way Stop. All traffic has a stop sign. All traffic must stop and you take turns going across. If you get there first, after you stop, you should go first.

b) Two-way Stop. <u>You</u> have a stop or yield sign but the other traffic (on cross <u>streets</u>) does not. The other traffic just keeps moving. You must wait until nobody from that side is coming at all — searching left-right-left — before you go.

INSTRUCTIONAL STRATEGIES

Use prepared intersection diagrams and overlay pieces to describe each of the intersection situations described below. Always discuss right-of-way.

Ask students which vehicle should go first. Explain that it is difficult to tell because there is no traffic signal or sign.

Remember, if in doubt, yield!

Emphasize that the bicyclist must make sure the motorist is going to let him go. Watch his eyes, make sure his vehicle isn't starting out, etc.

c) Two-way Stop. You have no signs but the other traffic has a stop or yield sign. The other traffic is supposed to stop and wait for you to cross, but sometimes they don't, so be prepared to stop even though you shouldn't have to.

- o Even at stop signs, drivers often only slow and don't stop completely. This is wrong but they often do it.
- o They may not see you or may decide they have enough time to go in front of you.

3. How can you tell if it is a two- or four-way stop?

a) It may say "four-way stop" on your stop sign, which means all traffic must stop.

b) You can see a stop sign on the other corner intended for crossing traffic.

c) If you don't see either of these clues, assume that they can just keep going (C-2b above).

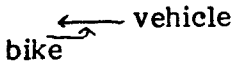
4. "Yield" means you must be able to stop and be prepared to stop. When you come to the intersection, slow or even stop if you must so that you can search left-right-left to make sure it is clear. Go across (or turn) only when it's clear.

a) Crossing traffic always has no stop or yield sign. They can keep going and you must let them go first.

b) Even though "yield" doesn't require you to stop, often you'll have to for these possible situations:

- o There are visual obstructions so that you have to go very slow or stop to see whether it is clear while you can still stop if someone's coming.
- o Crossing traffic is coming and you must stop in order to let them go first.
- o You are planning to turn left and you must yield to vehicles coming toward you.

- o You are going straight and an oncoming vehicle which is turning left across your path fails to yield to you, probably because he doesn't see you or may not understand you should be allowed to go first.



In this situation, the bicyclist has the right-of-way but must yield rather than be in an accident.

CONTENT

D. Controlled intersections may be controlled by a traffic signal.

1. What does a traffic signal mean to a bicyclist?

a) Lights show to traffic coming in both directions.

b) If you have round green Ⓖ , it means you can:

- o go straight ahead if it is clear and other traffic should yield to you
- o turn right if it's clear and other traffic should yield to you
- o turn left if you've gotten to the center of the road carefully and if no traffic is coming toward you. (But you yield to oncoming traffic.)

— round green Ⓖ tells you something about what other roads see; everybody else must have red Ⓡ except the roadway directly across from you, which may also have green .

— green arrows Ⓖ mean you can go in the indicated direction — if it's clear — and that everybody else should yield if you go in that direction.

c) If you have round red, you must stop.

- o wait for green before going ahead after yielding to others, or
- o if "right turn on red" is permitted, after you've stopped, turn right if it's clear: signal, yield to pedestrians and motor vehicles, then make your turn. You must stop first.

d) If you have "amber" — i.e., yellow — Ⓨ — you, on a bicycle, treat it like red: stop if you can before going into the intersection.

- o cars can usually enter the intersection on amber — they go fast enough to get out of the intersection before the other traffic starts up.
- o bikes are usually slower than cars, and would still be in the middle of intersections — especially big ones — when the other traffic starts up. So wait — stop if you can when the light turns yellow — and go on the next green.

E. The law requires all vehicles to come to a complete stop and yield to all other traffic at all stop signs and flashing red lights. At steady red lights, all vehicles must stay stopped until the light turns green.

F. Most bicyclists know that it is against the law to run a stop sign or traffic light. Yet many bicyclists fail to stop/yield at controlled intersections.

i.e., signalized intersection

Ask students why the law requires this.
Answer: Only if all vehicle drivers come to a complete stop will each have enough time to search the area and detect approaching vehicles that pose a threat. This law also helps establish order and predictable behavior.

Direct students to study Accident Report Form #4 in their workbooks. Discuss the accident and determine why the accident occurred, i.e., the bicyclist ran a stop sign.

CONTENT

G. Accidents at controlled intersections almost never happen when bicyclists obey the law by stopping and looking left-right-left when required.

INSTRUCTIONAL STRATEGIES

Many motor vehicle/bicycle accidents are caused by the bicyclist running a stop sign or red light. This accident type is called "Intersection Ride Out."
Hang the fourth poster on the bulletin board.

Discuss question: Why do a large number of bicyclists fail to stop/yield at controlled intersections?
Possible answers:

1. The bicyclist underestimates the very real danger, the chances of having an accident and the severity of the accident.

2. The bicyclist underestimates the time needed to search for, detect, and avoid approaching motor vehicles.

3. The bicyclist is in a hurry or does not wish to expend the energy to stop and then get going again.

4. Bicyclist is preoccupied and didn't even notice the stop sign.

Discuss what is wrong with each of these answers. While it is important not to unrealistically exaggerate the chances of an accident here, it is also important to convince the students of the very real risk. Every time they run a stop sign, something bad might happen. It might not be today, tomorrow, or even this month; but if they continue to run stop signs, sooner or later something bad is almost certain to happen.

Display transparencies 6-1 through 6-3 and discuss the types of accidents that occur when a bicyclist fails to stop at a controlled intersection. In each case, the discussion should proceed as follows:

Example for transparency 6-1:

- o Have students Search for Clues:

  1) Stop signs
  2) Pavement marking "Stop"
  3) Motor vehicle approaching intersection

- o Have students Predict what motorist will do:

  1) Go straight through the intersection
  2) Hit bicyclist

- o Have students Decide what the bicyclist will do:

  1) Stop
  2) Swerve out of vehicle course

- o Ask: What could have avoided this accident?

These are very important. Be sure students understand each action.

CONTENT

H. Proper behavior at intersections.

1. The bicyclist should search the environment continuously for hazards.

2. The bicyclist detects all stop signs, yield signs and traffic signals.

3. The bicyclist recognizes every intersection as a high risk area.

4. The bicyclist comes to a complete stop at stop signs and red lights. He comes to a complete stop at intersections controlled by a yield sign when traffic is approaching on the cross street.

5. The bicyclist searches the high hazard area for clues to potential danger and identifies potential threats. If his vision is obstructed, he moves his bicycle to a section where the entire high hazard area can be seen clearly, stops and then looks left-right-left.

6. The bicyclist does not enter an intersection until confident that no pedestrians and/or vehicles are approaching.

Review each of these steps.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 7 — Riding Recklessly

OVERVIEW: Bicyclists often do things on their bicycles which seem, in retrospect, to be extremely reckless or foolish. These actions usually don't result in accidents, but they expose the bicyclists to excessive danger. This lesson is concerned with two aspects of reckless riding.

First is understanding the reasons behind the decisions to ride recklessly and becoming able to change those decisions. Direct peer or adult (parental) pressure is clear when described, and class discussion is focused on finding ways to counter such pressure. Other, more subtle, motives which have no direct relationship to bicycling but can encourage unsafe riding are also brought out.

Second is the accurate judgment of the potential danger of specific bicycling actions or styles. For young bicyclists particularly, the potential for dangerous consequences of particular actions is often underestimated. This can be due to underestimating the severity of particular consequences — such as not realizing the cost and impact on the bicyclist and his/her family due to a serious leg fracture — and/or due to discounting the likelihood of certain results actually happening. Because the goal is for students to be able to decide realistically what risks to accept when bicycling, this lesson emphasizes student discussions, so that they express the important factors themselves and relate them to their own experiences and styles of thinking.

Accident Type 5 — Trapped by the Signal — is a clear example of faulty risk assessment. In the accident, a bicyclist who starts through an intersection on an amber light is still in the middle when the light changes; he/she is hit by crossing traffic starting into the intersection. The bicyclist may have shown faulty judgment, not realizing the amber signal phase is too short for slow-moving vehicles or underestimating the likelihood that crossing traffic would not see him/her and yield, or he/she may show no judgement, failing to even recognize any unusual hazard.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Describe ways to cope with pressures to ride dangerously
2. Judge the danger in crossing an intersection on a yellow light

EQUIPMENT: Overhead projector

MATERIALS: Prepared transparencies; newspaper clippings describing bicycle/motor vehicle accidents involving children

PREPARATION: Locate newspaper clippings describing bicycle/motor vehicle accidents involving children

CONTENT

I. Reckless Riding

A. Many bicycle/motor vehicle accidents can be prevented by obeying traffic laws.

1. Many kinds of accidents at controlled intersections would never happen if bicyclists obey the law.

2. If bicyclists would always stop and search left-right-left before entering the roadway, there would be very few ride out accidents.

3. Of course there would be no wrong-way riding accidents, if bicyclists always rode with traffic on the correct side of the street.

B. A few bicyclists do not know the rules. (These were covered in Lesson 6.)

C. But some bicyclists continue to ride unsafely even when they know the rules and should know what they are doing is very dangerous.

D. There are several reasons bicyclists may disobey safety rules:

1. Peer pressure

2. Curiosity

3. Competing needs such as saving time and/or energy

4. Not thinking

5. Thrill seeking

6. Ignorance

7. Poor judgement of how likely it is that a particular action may lead to an accident

8. Underestimation of how serious the consequences of an accident may be

E. Peer Pressure.

1. People want to be liked and accepted. Young people especially need to be a part of a group. If "everyone" is doing something, a young person will want to do it also.

2. If there is an acknowledged leader, young people will want to follow his example.

INSTRUCTIONAL STRATEGIES

Ask students why some bicyclists don't obey the laws. Write answers on the chalkboard. Compare with the list given in D.

Be sure that students understand the meaning of these terms.

Have students give examples of how each of these pressures can cause bicyclists to ride unsafely. You may want to give an example to get the discussion going.

F. Curiosity.

1. Some people need to learn just how far they can push themselves and their vehicles without getting hurt.

2. This kind of curiosity can be very dangerous since one can easily push too hard and have an accident.

G. Competing needs.

1. There are many competing needs which may seem more important than safety. For example:

   a. Getting home on time or you'll miss dinner
   b. Getting to school on time or your teacher will be angry
   c. Too tired to stop at a stop sign
   d. Wanting to get out of the rain

2. At the time, competing needs always seem very, very important — more important than anything.

3. Always ask yourself, would it really be worth getting hurt or maybe killed?

4. And always, always remember — it can happen to you!

H. Not thinking.

1. Bicycle riding is fun. But there is <u>always</u> an element of danger involved.

2. To be safe, bicyclists must be alert at all times, so that they can react predictably and safely.

INSTRUCTIONAL STRATEGIES

Ask students why some people exert pressure on others to ride safely or unsafely.

- o What do your parents do to make you ride safely?
- o Who else tries to make you ride safely?
- o Has anyone tried to make you ride unsafely? If any student answers yes to this question, be sure to have him explain the situation and what he did. Ask students how else he might have responded.

Ask students for examples of competing needs. Write the answers on the chalkboard. When discussing competing needs, ask, "Would it really be worth getting hurt or maybe killed?"

Note that most kids' reaction is often "it can't happen to me." It is essential that students realize it can happen to them. One way to get this across is to have students give examples of when it happened to them or a close friend. Although no student may have been in a bicycle/motor vehicle accident, have students describe bicycle accidents and why they happened. Then discuss what could have happened if the bicyclist had been doing the same thing on a roadway.

A second way is to have several newspaper clippings of bicycle/motor vehicle accidents happening to children their age. This method should not be used alone, since students can still feel that it only happens to other people.

This was Rule 17 in Lesson 6. People don't have to do dangerous things on purpose — they may just do things without thinking enough about them, and the things are dangerous at that time.

CONTENT

I. Thrill seeking.

1. A few people have a desire to take risks just for the sake of taking risks. Often these people are trying to prove themselves.

2. Fortunately, there are many other safe ways people can use to prove how good they are without taking such chances.

J. Ignorance.

1. A few people may not know the safety rules and laws.

2. But ignorance is no real excuse. The rules are easy to learn and a good bicyclist will learn them.

K. Poor judgement of how risky some action is.

1. Inexperienced bicyclists find it very difficult to evaluate traffic situations.

2. It is especially difficult for young kids since their argument — it will never happen to me — is true in their experience.

INSTRUCTIONAL STRATEGIES

"Risk taking" is not necessarily bad. It is a way for people to learn their personal limits and to expand those limits through testing them, building also their self-esteem and confidence. There is always some element of danger to risk taking. Of concern here is that bicyclists who do risky things do so with foreknowledge: that they know they're doing something risky, that they accurately judge the chances of accidents and the severity of the consequences, and that they still judge the risk to be worth taking for its potential benefits.

Ask students how people can prove themselves without taking unsafe risks. List answers on the chalkboard and discuss.

It is very difficult for young kids to evaluate situations for their true risk. Experience is a good teacher, but, unfortunately, the bicyclist could be severely hurt before he learns the necessary techniques. The Bicycle Safety Game was developed to give students experience in detecting hazards and evaluating traffic situations safely. This is very important and should be emphasized.

Again, point out the likelihood that riding dangerously will lead to accidents —even to them. Use examples from your local paper, from their friends or relatives, or, better still, examples they bring up themselves.

Read the hypothetical letters from students in situations of conflict about bicycling. Discuss how to cope with pressures to ride recklessly. Points to discuss are briefly outlined following each letter.

1. Dear Detective Wheel,

   My friends like to play follow the leader when we are riding our bikes. When Mike leads, he always weaves in and out of traffic. Two of us are afraid, but the others think it's fun. What should I do?

   Sincerely,
   Mary

   o This is an example of peer pressure.

   - Could Mary and the other child who is afraid find other friends to ride with?
   - Could Mary get the other children to make Mike change his ways or not be the leader?

CONTENT

- o Is Mike a Thrill Seeker?
  - Can Mary think of other ways Mike could prove himself?
- o Does Mike know he is breaking a safety rule?
  - Can Mary explain why it is dangerous to weave in and out of traffic?
- o Does Mike understand how risky his action is?
  - Can Mary describe just how risky weaving in and out of traffic can be?
  - Can she give examples of accidents caused by this action?

2. Dear Detective Wheel,

Patty is my best friend. We ride our bikes everywhere. But Patty likes to ride side by side so we can talk. I don't think this is safe. What can I do?

Sincerely,
Jane

- o There are two issues involved here: first, side-by-side riding, and second, the distraction of talking.
- o Does Patty know that although it is legal to ride side-by-side, it can be dangerous on narrow or busy streets? and always dangerous to be distracted from searching and reacting properly?
  - Can Jane and Patty set some guidelines on when it is OK to ride side-by-side and when it isn't?
  - How could Jane tell Patty this so that it won't hurt her feelings?
- o Does Patty know how risky this action is?
  - Can Jane explain the risk and assure Patty that it is because she likes her so much that she doesn't want her to do anything unsafe?

3. Dear Detective Wheel,

I have banged up my bicycle twice giving other kids rides. My parents have told me if I'm in another accident, I won't be allowed to ride my bike at all. But my friends will think I'm a fink if I don't give them rides. What can I do?

Sincerely,
Jack

- o Jack really doesn't want to give his friends rides. What excuse can he give? Should he tell them the truth directly?

CONTENT

4. Dear Detective Wheel,

   There is a steep hill near my house. My friends and I race our bikes there. You really have to pedal fast to win. One of my friends lost control of his bicycle and fell. I don't want to race anymore but my friends will call me a sissy if I quit. What can I do?

   Sincerely,
   Larry

   o This is a good example of peer pressure. Larry really doesn't want to race in such a dangerous setting.

   - What excuse can he given that won't make him look like a sissy?
   - Would explaining the danger to the other kids help?
   - Would he really be a sissy if he quit?

5. Dear Detective Wheel,

   My mom always sends me to the store for last minute groceries. I don't have a basket on my bike and sometimes the packages are so big I have trouble holding them and controlling my bike. I've asked for a basket but my mom says no more gifts until my birthday. What should I do?

   Sincerely,
   Billy

   o Billy's mother doesn't seem to know how risky carrying large packages can be.

   - How can Billy convince his mother of the risk?
   - Can Billy explain that since the basket would be used to run errands, it needn't be a "gift"?

Have students role play the following situations. The point of this exercise is to make students understand, be sympathetic to, and act out, ways to resist the realistic pressures to riding foolishly. After each presentation, discuss other possible actions and results. This is a very important exercise. Be sure to give enough time and attention for its successful completion.

Role Play #1

Suppose you are riding your bicycle on the way to school. A friend joins along beside you. The street is busy and you feel that it would be safer to ride single file. What would you do?

Role Play #2

Suppose you are riding your bicycle home. You meet a friend on foot who is carrying two large packages. The friend asks you to fit them into your basket, but they are too large and block your view. What would you do?

CONTENT

Role Play #3

Suppose your friend has a new ten-speed bike. Everyone is trying it out. You want to ride it but it is too big. Your friends keep saying to try it anyway. What would you do?

CONTENT

II. Case Number 5: Trapped by the Signal

A. Situation: Detective Wheel has returned to his office from an accident site. He has just completed his accident report form.

B. The yellow signal was added to traffic lights so that vehicles already in the intersection would have enough time to get through before the cross street traffic could enter the intersection.

C. The yellow phase was timed to give a motor vehicle approaching the light time to make it through the intersection before the light turned red.

D. Since bicycles travel slower than motor vehicles, the yellow light usually does not provide enough time for the bicyclist to get out of the intersection before the light turns red.

E. Often vehicle drivers are not watching anything but the light. They don't even see bicyclists.

F. There are special problem situations the bicyclist should know:

1. Vehicle waiting to turn left at a busy controlled intersection. The driver will move just as his light is turning green, to "beat" the oncoming traffic.

2. Vehicle starting just us the light turns green and

   - o driver doesn't look for bicyclists
   - o the bicyclist is hidden by another vehicle

3. Vehicle cruising up to the light as it is turning green goes straight through without looking.

INSTRUCTIONAL STRATEGIES

Direct students to the Accident Report Form #5 in their workbooks for students to study.
Ask students to describe what happened to cause the accident. There may be some confusion. The driver states the accident was caused by the bicyclist riding through a red light. The bicyclist says the light hadn't changed to red yet. Can students tell what happened?

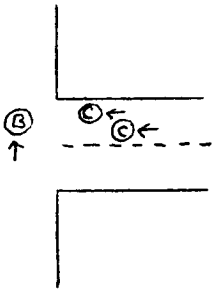
Answer: The bicyclist started through the intersection on yellow and didn't have enough time to get across. He got caught in the intersection. The motorist waited for his green light but never searched before accelerating from a stop.

Display transparency 7-1 which shows the relative distances vehicles can travel during a normal yellow phase.
Many bicycle/motor vehicle accidents are caused by the bicyclist getting caught in the intersection when his light turns red. This case type is called "Trapped by the Signal."

Hang the fifth poster on the bulletin board.

Display transparency 7-2 (bicycle trapped by left-turning vehicle) and describe this accident situation.

Display transparency 7-3 (bicycle trapped and hidden by another vehicle) and describe the accident situation.

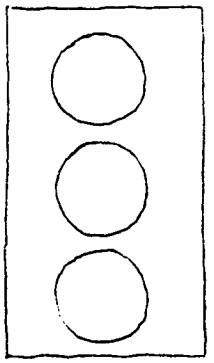


G. Because of these dangers, bicyclists should not enter an intersection when the light is yellow, even though it is not necessarily against the law.

INSTRUCTIONAL STRATEGIES

Display transparency 7-4 which reads:

FOR BICYCLISTS



STOP

STOP, IF YOU CAN

GO CAREFULLY

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 8 — Using the Decision Making Process

OVERVIEW: The four-step Decision Making Process (Search, Predict, Decide, Act) is reviewed in this lesson to take advantage of all the material that has been learned since Lesson 3. In addition to the review, two new points are raised: first, drivers should be using the Decision Making Process as they drive along. Second, that bicyclists should be following their proper course, riding in the proper place on the roadway at a reasonable speed, so that they are in the best state to apply and benefit from the Decision Making Process should danger arise.

Two accident types are discussed. Case Number 6 concerns bicyclists turning or swerving left, usually from the far right without proper searching. They are usually hit from behind but sometimes are hit by approaching drivers. The accident is entirely preventable by correct bicyclist's action. There are two recommended ways of turning left, depending on whether the bicyclist chooses to turn like a vehicle or like a pedestrian. Both emphasize visual searches for traffic, signalling, and proper position in the roadway.

Case Number 7 concerns bicyclists riding past parked vehicles. Bicyclists may be hit by opening car doors, or sometimes they swerve wide around a parked car (whose door may be opening) and are hit by overtaking vehicles. While the bicyclist is seldom completely at fault here, he can prevent the accidents — by riding on a path well out from parked cars (but not so far as to be hit by overtaking cars) and not weaving in and out of parked cars, and by watching for signs of people in parked cars who may open their doors.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Use the decision making process to decide what he/she should do in traffic situations
2. Describe two correct ways to make a left hand turn
3. Understand why he/she should always signal and search behind before making a turn
4. List ways to prevent accidents involving parked cars

EQUIPMENT: 35mm slide projector

MATERIALS: Prepared slides

CONTENT

I. Reviewing the Decision Making Process

A. Search: generally the clues to look for are:

1. The direction of traffic (for possible sources of danger as well as clues on how you should ride).

2. The number and speed of motor vehicles (if the traffic is too busy, you should consider a different route with quieter roadways).

3. Traffic controls, if any (the presence of traffic controls can help make traffic move in predictable ways).

4. Visual screens (dangerous because they can block your view of traffic as well as hiding you from traffic).

5. Hazards on the road (such as potholes, gravel, etc.).

B. Predict what other roadusers will do.

1. Are they communicating their actions?

2. Do they see you?

C. Decide on your safest course.

1. Drive defensively.

2. When in doubt, let the motorist go first.
(Bicyclists should not give up their rights on the road without cause. They are legitimate members of the road traffic and should act and be treated accordingly.)

D. Act in the safest, most predictable way.

1. Riding right.

2. Riding at reasonable speeds.

3. Riding with traffic awareness so that the bicyclist is in the best position to search, decide, and act to remain safe.

INSTRUCTIONAL STRATEGIES

Ask students to describe the steps in the decision making process.

Explain that a bicyclist should mentally prepare for a ride, for example, by imagining himself as a motorist. He can imagine how a motorist would drive the route he has planned, and then ride as the motorist would but with a few compensations to account for the fact that he is really on a bike:

- ride right
- prepare to be unseen
- ride defensively, since he is smaller, slower, and less protected

CONTENT

II. Using the Decision Making Process in Traffic

A. Bicyclists should use the decision making process to decide what they should do in traffic situations.

B. Motorists should also use the decision making process to decide what they should do in traffic situations.

C. If all roadusers used the decision making process, there would be fewer accidents.

INSTRUCTIONAL STRATEGIES

Display slides 8-1 through 8-8 showing bicyclists in traffic situations. The discussion for each should follow this outline:

1. Search - What clues can the bicyclist use to figure out what the motorist is going to do?

2. Predict - What safety rules apply to the motorist? If he obeys the safety rules, what will he do?

3. Decide - What should you do? If you knew the motorist didn't see you, would you do something else? (Emphasize that students should assume the motorist can't see them.)

4. Act - Remind students that often they will have only seconds to respond. They must practice the decision making process so that it becomes natural to them.

Display slides 8-1 through 8-8 again, showing bicyclists in traffic situations. Explain that students should pretend that they are the motorist. The discussion for each slide should follow this outline:

1. Search - What clues can the motorist use to figure out what the bicyclist is going to do?

2. Predict - What safety rules apply to the bicyclist? If he obeys the safety rules, what will he do?

3. Decide - What should you (the motorist) do? If you knew the bicyclist didn't see you, would you do something else?

4. Act - Again remind students how quickly action must be taken.

CONTENT

III. Case Number 6: Bicyclist Unexpected Turn/Swerve

A. Situation: Detective Wheel has interviewed the accident victims and is preparing to write up his Accident Report Form.

B. Many bicycle/motor vehicle accidents occur when a bicyclist is in the process of executing a left-hand turn maneuver — at intersections or in midblock locations.

C. There are two recommended ways for a bicyclist to make a left turn at an intersection where traffic on both streets is moving in two directions:

1. Obey the traffic signals and signs. Ride across the intersection, staying close to, but not inside, the pedestrian crosswalk. Stop at the far corner and face the direction you want to go. Watch the traffic signal on the other side of the street. Then cross the intersection when you have the signal and traffic is clear.

2. Look behind to see if there is any hazardous traffic. If not, signal and pull over into the left lane closest to the center line. Obey the traffic signal. Turn into the other street in the left-most lane going in your direction. Looking right, merge to the right as soon as possible.

D. Midblock, there are also two ways to get across a street, for example, to turn into a driveway:

1. Search, signal, and merge into the left-most lane going in the same direction as the bicyclist and, after waiting for oncoming traffic to clear, completing the turn.

2. Stop at the right-hand edge of the road, dismount the bicycle, and cross as a pedestrian.

E. Even some experienced bicyclists who know the correct methods for making left turns find this a dangerous and difficult task. There are several errors which can increase the danger:

1. The bicyclist does not use a hand signal to warn motorists therefore the motorist is not prepared to slow down and is taken by surprise when the bicyclist swerves out.

INSTRUCTIONAL STRATEGIES

Direct students to the Accident Report Form #6 and the accompanying interviews. Have students complete the accident form.

Discuss the accident and determine why it occurred, i.e., the bicyclist made a left turn without looking behind to see if there was any traffic.

Explain that a bicyclist could interfere with pedestrians by riding in the crosswalk. But a bicyclist, if he wishes, can get off his bike and walk across the intersection in the crosswalk.

Display slide 8-9 (how to make a left hand turn) and trace the proper directions. Remind students that on very busy streets, a bicyclist should walk his bicycle across both sides. If a bicyclist walks his bicycle, he is a pedestrian and should use the pedestrian crosswalks.

Display slide 8-10 (more advanced way to make a left hand turn) and trace the proper directions. Emphasize the importance of carefully searching behind for approaching traffic and giving the proper hand signal. Note that there are three distinct merges/turns. Each must be preceded by visual search and a hand signal before turning.

Display slide 8-11 which shows a bicyclist preparing to turn left. He is searching to the rear and signalling his move to the motorist behind. In a moment, he will search forward, and in the path of his turn. Once the path is clear, he will begin his turn. Ask students why he must search forward again before he turns.

Remind students that they must communicate their actions to motorists. Their lane position and searching behavior can convey as much information to drivers as hand signals. Emphasize that all aspects must properly advertise one's intention to turn left.

2. The bicyclist does not carefully search behind for approaching traffic. When making this maneuver, of turning head and body, it may seem difficult to maintain balance and lateral control of the bicycle. However, a bicyclist can learn to look behind safely and must do so before moving left or right.

3. The bicyclist relies solely on auditory clues to determine whether a vehicle is approaching. Sounds are not a reliable way to determine the number, speed or position of vehicles.

   a. A car may be too quiet to hear at all.

   b. A car following another vehicle has its sound masked by the first vehicle's noise. Therefore, a bicyclist can't tell there is more than one vehicle.

F. Detective Wheel has seen many accidents caused by improper left turns at intersections, or turning into driveways or just pulling across the road for any reason. Bicyclists who swerve across a lane or street without looking and signalling, showing off or just wanting to get across to the other side, cause many of the accidents. Any action which makes the bicyclist unpredictable is dangerous and can lead to an accident.

INSTRUCTIONAL STRATEGIES

Emphasize that since this is a difficult maneuver, bicyclists should practice it in a protected (safe) place before attempting left turns in traffic.

Emphasize that auditory clues are helpful but not sufficient. Certainly, if the bicyclist hears a vehicle, it is there. But there will be times when a vehicle is too quiet to hear before it is too late to respond properly, or more often, there are two vehicles and the bicyclist hears what he thinks is only one. In this case, the bicyclist will wait until the first car passes and then turn into the second vehicle's path.

Frequently it is necessary for a bicyclist to know exactly what is going on behind him. Ask students to give examples when it is necessary to know what is happening behind them. Possible answers include:

- o before you make a left hand turn
- o changing lanes
- o to avoid an obstacle
- o whenever the road narrows
- o suspicion that a motorist is driving erratically
  (Emphasize that if one suspects this, one should get off the roadway at once.)

Hang up poster #6 on the bulletin board.

CONTENT

IV. Case Number 7: Parked Cars

A. Most students are aware that accidents often happen when a motorist opens the door of his vehicle into the path of a bicyclist approaching from the rear.

B. The cause of this type of accident is clear and simple. Because motorists do not expect to encounter a bicyclist riding alongside their vehicles, they do not search properly and do not see the bicyclist.

C. Parallel-parked vehicles can be a hazard. Fortunately, they are simple to detect. What is far more difficult, is detecting the presence of occupants in parallel-parked motor vehicles.

D. When a bicyclist determines that a parallel-parked vehicle is occupied, he should always proceed on the assumption that the occupant will open the vehicle's door in his path.

E. The behavior required to avoid this type of accident follows:

1. Search the environment continuously and selectively.

2. When riding along a narrow street with parallel-parked vehicles, reduce your speed to gain the time required to search ahead for clues to danger.

3. Ride to the left of parallel-parked vehicles if the roadway is wide enough to do so safely (i.e., not so far out as to be in danger from overtaking cars).

4. Search for clues to danger and identify potential threats.

5. If there is any indication that a parallel-parked vehicle is occupied, reduce speed and check for a motor vehicle approaching from the rear.

INSTRUCTIONAL STRATEGIES

Display poster #7, Parked Cars. Ask students to describe the accident.

Display slide 8-12 (bicycling alongside parked cars). Explain that this is especially true if the bicyclist is coming up behind the parked car intending to swerve around it. The bicyclist can't possibly be seen in the outside mirror, which is the one drivers use before opening car doors.

Display slide 8-13 (showing clues to determine if occupants are present). Ask students for clues that point to the presence of occupants in parallel-parked vehicles. Write their answers on the chalkboard. Answers should include:

1. Movement of the motor vehicle or any of its parts. A good example is turning outward of the front tires or visible exhaust from the tailpipe.

2. View of the motorist's head through the rear window of the motor vehicle.

3. View of the motorist's head in the motor vehicle's side mirror.

4. Lit backup or brake lights.

5. Vehicle's door ajar.

Display slide 8-14 (car door open). Ask students why this is useful. Explain that it takes little effort to stay out where it is safe and builds habits which a bicyclist will use always — even if not paying really close attention — and which will protect him against unseen drivers or other hazards around parked cars (e.g., kids darting out).

To determine how far left they should ride, ask students how far would a car door stick out if open. Have students stand parallel to their desk at what they think is the proper distance. Tell students they should be approximately three feet to the left of their desks. Take a yard stick and measure the distance. Have students stand in the correct positions.

That is, identify whether there is someone in the motor vehicle.

6. If a motor vehicle is approaching from the rear and you are uncertain about whether there is enough room for you to move into the traffic lane, come to a complete stop until the traffic lane is clear or the motorist has exited the parked vehicle.

F. Do not weave in and out of parked cars.

1. It makes riding much more difficult since the bicyclist must merge so frequently.

2. It makes it more difficult for motorists or drivers in parked cars to see you or predict your movements.

INSTRUCTIONAL STRATEGIES

The instructor should explain that the injuries from this type of accident can be quite severe. Emphasize that the injuries resulting from this type of accident are strongly related to the bicyclist's speed.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 9 — Knowing Your Surroundings

OVERVIEW: Vision is critical to safe bicycling, yet it is a sensory system not well understood by many people. It is important to understand the capabilities and limitations of vision, so that one can use vision most effectively and so that one can recognize situations in which vision is inadequate and take other measures to insure safety. This lesson helps students become more familiar with their visual abilities, so that they can use them reliably in bicycling.

Two aspects are stressed. First, static visual field. Although we can "see" a broad field — nearly the inside of a hemisphere — without moving our eyes, we can see fine detail only in a very small central area. Outside that area vision gets progressively poorer, although peripheral movement and bright colors can still draw our attention. We can control where we focus our central vision, by moving our eyes, heads, and bodies.

Second, dynamic "information processing." We can perceive only so much in a short period of time, and bicycling (and driving) often present important information to us so quickly that we have difficulty keeping up. One thing that helps is knowing what things to look for and where — signals, the road surface, approaching traffic — so that vision is not wasted looking in the wrong directions or at unimportant things. But we should also be able to recognize when we can't see enough, fast enough, for safety and to take measures to be safe — e.g., slow down, concentrate, move to a safer location. Class exercises in vision and reaction time help bring these points home in a way that students can learn and use when they get outside the classroom.

Two accident cases are covered. Case Number 8, Motorist Stop and Go, usually occurs at intersections with stop sign controls. It can occur anywhere, however. It happens when a motorist, stopped for a sign or for other traffic, starts forward into the path of a bicyclist. Usually the motorist hasn't noticed the bicyclist, because he was concentrating on other things and didn't search specifically for bicyclists. Although he's not usually at fault in these accidents, a bicyclist can do several things to prevent them. He should always ride in the street where he belongs, of course, and he can use bright flags, clothing, or lights to be more easily seen. And he can always be prepared to yield the right of way, even if it's legally his, to avoid an accident.

Case Number 9, Motorist Unexpected Turn, is very similar, and bicyclists can use the same guidelines to prevent those accidents. In Case 9, the motorist is usually moving and is initially either going the same way as the bicyclist or facing him. But the motorist turns — with or without signalling — and cuts the bicyclist off. These accidents involve right or left turns at intersections, and they can be particularly shocking to bicyclists because they're "sure" they have been seen by the motorists. The lesson helps show why motorists might not have truly detected the bicyclists, and it gives some ways to make it more likely to be seen.

INSTRUCTOR'S LESSON PLAN

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Identify need to search immediate environment for potential dangers

2. Describe cause of specific accidents as:

   - search failure by bicyclist
   - search failure by motorist

3. Describe limitations of visual system

EQUIPMENT: 35mm slide projector, flashlight ruler, stopwatch or clock with second hand

MATERIALS: An 8 1/2" long, 3/4" diameter tube for each student; prepared slides

PREPARATION: Make tubes (one per student) by wrapping a sheet of standard sized typing paper around a 3/4" dowel rod. Cut out flash cards. For more permanency, back with cardboard before cutting out.

CONTENT

I. Central and Peripheral Vision

A. The eyes must work very hard in order for a bicyclist to ride safely in traffic.

B. The eyes are very good at seeing, but they do have limitations.

C. The eyes must look directly at an object in order to see it clearly. The area of the eye with which one sees when looking directly at an object is called the Area of Central Vision.

D. The area of central vision is small.

E. Central vision is necessary in order to see things clearly but it would be very difficult to function in a traffic environment if the eyes were limited to central vision.

INSTRUCTIONAL STRATEGIES

Ask students to identify the types of things a bicyclist must see in order to ride safely. List students' answers on the chalkboard until the list is long enough to clearly illustrate that the eyes must work very hard to provide all the visual information required to ride a bicycle safely.

Demonstrations:

1. Direct students to the matrix of letters, page 9-1 in their workbooks. Tell students to hold the sheet about 18 inches from their eyes and stare at the bold "X" located in the center of the matrix. Ask students the following questions:

   - o What is the letter farthest from the "X" you can read without moving your eyes? (All students should be able to read the A's and a few should be able to read the B's. No student should be able to read any letter located outside the circle.)
   - o Can you see the outline of the square without moving your eyes from the "X"?
   - o Can you see the edge of the paper without moving your eyes from the "X"?
   - o Why can you see the "X" and the A's clearly but cannot see the other letters without moving your eyes from the "X"?
   - o What does this demonstration tell you about how you must use your eyes when you are riding your bicycle in traffic?

2. Distribute a tube to each student (see preparation for making tubes). Explain that the area that can be viewed through the opening in the tube is the area of central vision. Have students scan the room through the tube until they have a clear notion of the small size of the area of central vision. (About one minute should be sufficient time.)

3. Have about one-half of the class stand along the front wall of the classroom. The other class members should remain seated. Tell seated students to observe the head movements needed by students to search the room through the tube. Give standing students the following instructions:

   - o Face the wall until a "go" signal is given.
   - o When you hear the word "go," you should: close one eye, place the tube in front of the other eye, turn around to face the class, and search the room — viewing through the tube — until you have located one of the students who has his hand raised (to face height) with one to five of his fingers extended.
   - o When you have identified the number of fingers extended, you should raise your hand over your head with the same number of fingers extended.

   (Note that this exercise demonstrates how much is lost by not having peripheral vision.)

CONTENT

F. The fine details of objects cannot be seen clearly, with peripheral vision, but peripheral vision directs our gaze to objects that should be examined carefully with central vision.

G. Both central and peripheral vision are necessary for safely riding a bicycle in traffic.

II. Fields of View

A. The area we are able to see is called our field of view.

B. The area one sees when looking directly at an object is the field of view using central vision only.

INSTRUCTIONAL STRATEGIES

Two or three trials with the tube should be enough to demonstrate how little one can see and how difficult it is to search when limited to central vision. Then perform the task several times without the tube to illustrate the ease of visual search when the student can use both central and peripheral vision.

Repeat demonstration with the other half of the class.

After the demonstration, ask students:

- o Is peripheral vision important to a bicyclist riding in traffic?
- o When riding a bicycle in traffic, what kinds of things do we see with peripheral vision?
- o Could we ride a bicycle safely in traffic without central vision? (Probably yes)
- o Could we ride a bicycle safely in traffic without peripheral vision? (No)
- o What kinds of things may obstruct a bicyclist's peripheral vision? (Certain types of hats and hair styles)
- o What types of things obstruct the motorist's peripheral vision? (Certain types of hats, hair styles, and the structure that supports the roof of the vehicle)

Display slide 9-1 to show how one can see detail straight ahead, but can still see, with less detail, off to the side, "periphery."

Explain that peripheral vision sees the broad whole of a scene, but not in detail. Usually you don't concentrate on things with your peripheral vision, but once you start to attend to something which you detected peripherally, you want to focus your central vision on it. Things that can effecively draw your attention include:

1. bright colors
2. movement
3. the unusual
4. the important

Demonstrations:

1. Say to students: "Extend both your arms together directly in front of you and point both your thumbs toward the ceiling. Now, focus your eyes on the crevices (wrinkles) on the joint of your left thumb and don't move them from this spot. Can you see the crevices on your right thumb?" (Students should answer "Yes.") "While keeping your eyes focused on your left thumb, you should slowly move your right hand to the right until you can no longer see the crevices on your right thumb. The position your arm

C. Your field of view for central vision can be increased by moving your eyes (eye rotation).

D. Your field of view for central vision can be increased by moving your head (rotation of the head).

E. Your field of view for central vision can be increased by moving your head and body (rotation of head and torso).

F. You also have a peripheral field of view.

G. Your peripheral field of view can be increased by rotating your eyes, your head and your torso.

III. Effects on Searching

A. Eye movements and head movements are almost always required to obtain a clear view of important objects in the traffic environment.

B. By moving his eyes constantly up and down the roadway, side to side, the bicyclist is able to check out everything in the traffic scene using central vision as a spotlight which constantly sweeps over the riding environment.

is in when the crevices disappear defines the approximate limits of your central field of view. You can still see your thumb at this point, but you cannot see the fine detail.

2. Extend your right arm directly in front of you and point your thumb toward the ceiling. Keep your back pressed firmly against the back of your chair and keep your head pointed directly in front of you. Without rotating your head or shoulders, move your arm to the right and keep your eyes focused on your thumb. You will soon reach a point where you cannot rotate your eyes any further. Continue to move your arm until you can no longer see the crevices in your thumb. The position your arm is in when the crevices disappear defines the approximate limits of your central field of view with maximum eye rotation. If you wish to see anything further to the right, you must turn your head or body.

3. Repeat the exercise allowing students to move their heads. Discuss how rotating the head increases the size of their field of view.

4. Repeat the exercise allowing students to move their heads and torsos. Discuss how rotating the head and body increases the size of their field of view.

5. Pick out an object directly in front of you and keep your eyes focused on it. Now extend both arms to the side, parallel with the floor. Wiggle your fingers. Can you see them move without moving your eyes? (Students should answer "Yes.") Move your arms in back of you until you can no longer see your fingers move when you wiggle them. The position your arm is in when you can no longer see movement defines the limits of your peripheral field of view.

6. Repeat the demonstration with eye rotation, with eye and head rotation and finally with eye, head, and torso rotation. Discuss how the field of view is increased in each situation.

Direct students to the figure on page in their workbooks. Ask students:

1. With eye movement alone, what can the bicyclist see?

2. With eye and head rotation?

3. With eye, head and torso rotation?

4. Do you think that the motorist can see the bicyclist?

Use a flashlight to illustrate this spotlighting technique. Stand in the middle of the room. . .most of the time you will be scanning forward, with occasional searches to the left, to the right, and to the rear. Stop for a split second on significant objects.

C. It is difficult for a bicyclist to obtain a clear view of objects to the rear even though he rotates his eyes, head and torso to their maximum.

1. Although objects to the rear can be seen with peripheral vision, peripheral sight is not good enough for a bicyclist to make an accurate assessment of the distance and speed of approaching motor vehicles.

2. The problem is compounded by the fact that lateral control is somewhat more difficult to maintain while looking to the rear.

3. The problem is again compounded by the fact that it is dangerous to take your eyes from the front view for a significant period.

D. In order to see everything needed to ride safely:

1. Search your environment continuously.

2. Use eye and head movements while searching.

3. Look behind, especially before changing lanes or making left turns.

4. If available, use a rear view mirror.

E. To make searching easier and more effective, search for specific things such as moving cars, turn signals, traffic signals, etc.

IV. Visual Overload

A. The eyes must work very hard to provide all the visual information required to ride a bicycle safely in traffic.

B. Bicycles rarely go as fast as motor vehicles, but they can go too fast for safety.

C. At 12 miles per hour — a reasonable speed for a bicyclist — a bicyclist does not have time to inspect each and every object in the environment by focusing it in his area of central vision.

D. A bicyclist needs time to react to hazards.

This is an extremely important limitation of the visual system. Emphasize the two reasons why a rear view mirror can be so useful to bicyclists:

1. One can clearly see what is behind.

2. Allows rear vision while still able to easily see to the front.

Explain to students that motorists (who are good drivers) look regularly to the rear so that they always know just about exactly what traffic behind them is like. Bicyclists should do the same.

Ask students to name specific things a bicyclist should search for. List answers on the chalkboard.

RULER DROP: Demonstrate reaction time by dropping a 12 or 18 inch ruler above the awaiting hand of a student. Note: the student's hand will be extended as in a handshake, and the thumb will meet the fingers in much the same position as in holding a pencil. Hold the ruler directly above the awaiting hand. Note: position the ruler with the number "1" pointing to the floor. Instruct the student to grab the ruler once it is dropped — by pinching his fingers together, not by moving his hand downward.

CONTENT

E. When riding in traffic, a bicyclist must use the time available searching the traffic environment for hazards. He must search selectively, attending to objects that may pose a threat to his safety and ignoring all others.

F. A bicyclist who knows where to look and what to look for is far less likely to have an accident than a bicyclist who must constantly search all the area around him.

G. Distractions can cause a bicyclist to react slowly to hazards or even overlook them.

H. In fact, a distraction of as little as one second, at the wrong time, will cause a bicyclist to have an accident.

- o Drop the ruler. (Ask students to record the "inch pinched" when the ruler is caught; this is the distance the ruler fell before the student reacted.)

- o Repeat the exercise several times. Does the student improve? (There should be improvement. . .reaction time can be sharpened with practice. Point this out to the students as this forms the basis for our future training exercises.)

- o If time allows, have students pair up and perform the exercise ten times. Each try should be recorded. Have students switch roles so that everyone gets a chance to practice.

Display slides 9-2 through 9-6 (illustrating immediate hazards). Ask students to identify the hazards. Discuss why other objects in the environment should not be ignored.

RULER DROP WITH DISTRACTIONS: Demonstrate why distractions reduce our reaction time. Have the original student return for a new exercise. This time have several students come forward to create distractions (shouting, tapping subject on his shoulder, jumping around, flashing overhead lights).

- o Drop the ruler. (Ask students to record the number of inches in their journals.)

- o Repeat this exercise several times and compare the results.

DISCUSSION: What happened? It takes longer to react when distracted. It is difficult to focus all of one's energy on one object or event. Ask the students to identify five or six common distractions they have when riding a bike (dogs, loose fender, cold, potholes, etc.). Ask the students to identify five or six common distractions motorists encounter (radio, gas gauge, commercial signs, etc.). List them on the chalkboard.

Use this activity to help students comprehend short periods of time. Use the schoolroom clock or borrow a stopwatch from the PE teacher. Have one half of the class observe, and have the second half close their eyes. Tell the class when to begin. Instruct them to raise their hands when they think 12 seconds have gone by. How many students were early? How many on time. . .and how many were late in raising their hands? Have the students record the results. Suggest a technique for counting time (e.g., "one-Mississippi, two-Mississippi. . .") Repeat the exercise using this method. What are the results?

Continue to discuss the need to make decisions and act in very small periods of time. For example, in baseball, major leaguers have about ½ second from the time the ball leaves the pitcher's hand to decide whether to swing, wait, or duck out of the way and to execute whatever they've decided to do. In riding a bike, a bicyclist should know in general what he is going to do minutes ahead and know his detailed plans about 10-15 seconds ahead. And a bicyclist must react to danger in even much less time, e.g., one second minus whatever time it takes the bike to respond.

CONTENT

I. There are situations in which even the most experienced bicyclist has insufficient time to inspect all the possible hazards. When this happens, the visual system is said to be overloaded.

J. Visual overload is partly the result of the complexity of the visual environment and partly the result of travel speed.

K. Because motor vehicles typically travel faster than bicycles, motorists are even more likely to experience visual overload than bicyclists.

INSTRUCTIONAL STRATEGIES

Demonstrations:

1. Hold the first set of flash cards so that everyone can see. Explain that students should write down the hazards they see in each card. Give less viewing time for each successive card. After the demonstration, discuss how riding fast can cause visual overload.

2. Hold the second set of flash cards so that everyone can see. Explain that students should again write down the hazards they see on each card. Give students the same viewing time for each card. Since the situations depicted become more complicated, students should realize that the complexity of the visual environment can cause overload.

3. As an optional demonstration, you may use the second set of flash cards but give less viewing time for each successive card. This should enable students to realize the severe overload which can result when a bicyclist is riding very fast in a complex traffic situation.

Display slide 9-7 (travelling speeds). Ask students:

How far do you travel in one second? This transparency illustrates how far a car may travel in one second when travelling at 30 mph. What is the approximate width of your schoolroom? How many school rooms would the car travel in one second? (NOTE: Most schoolrooms are about 40 feet wide.) Using your classroom as a measure, how many classrooms will this car travel in one second.

Display slide 9-8 (illustrating stopping distances).

Now let us take what we learned about reaction time and apply it to how long it takes a motorist to stop his car. The distance a vehicle travels while the motorist is reacting is called reaction distance. By adding this to the total distance it takes for the brakes to work we have the total stopping distance. This slide shows us how far it takes to stop a car at 30 mph (99 feet). How many classrooms is this (assuming a 40 ft. classroom = 2.48 or 2.5 classrooms)?

Display slide 9-9 (illustrating stopping distances).

Do all vehicles stop this quickly? Ask students which of these vehicles requires the most/least space to stop.

Display slide 9-10 (braking distances).

When travelling at 15 mph these vehicles require these as minimum stopping distances. Note the reaction time (dotted lines) are the same. Also note that a bicycle with front and rear brakes will stop in a shorter distance than a bike with a rear brake only. (This is only on dry pavement. When the pavement is wet and the rims become wet, the braking distance is nearly three times as long.)

CONTENT

L. The probability of an accident increases greatly when the visual system is overloaded.

M. To avoid accidents, bicyclists must:

1. Learn how to avoid visual overload.

   - o First, slow down
   - o Second, pay closer attention
   - o Third, change course

2. Learn how to recognize situations in which visual overload is likely to occur.

3. Learn how to recognize situations in which visual overload is likely to occur in others (motorists, etc.).

INSTRUCTIONAL STRATEGIES

Display slide 9-11 (reaction distances).

Either now or when you get older you will regularly bicycle and drive on highways where vehicles are going 25, 35 or 55 mph. How does this affect the reaction distance? (Higher speeds result in increased distance.) Note it does not take longer to react, but the vehicle covers more distance at this higher speed. Does it take longer for the vehicle to stop? (Yes. . .see chart.) Help the students visualize these distances in terms of their classroom, football field or other familiar distances.

Car @ 25 mph	1.7 classrooms (67')
Car @ 35 mph	2.93 classrooms (117')
Car @ 55 mph	7.28 classrooms (291')
Semi @ 25 mph	2.70 classrooms (108')
Semi @ 35 mph	4.98 classrooms (199')
Semi @ 55 mph	12.28 classrooms (451')
	or 1.5 football fields

Ask students to explain why this is true.

Ask students how they can avoid visual overload.

1. Learning to search selectively.
2. Making optional use of their peripheral vision.
3. Reducing the number of things to process.

Ask students how they can recognize situations in which visual overload is likely to occur.

1. High traffic volume
2. Complex maneuver
3. Several sources of information
4. Rough pavement

(Note that there can be two kinds of answers:

1. Physical components correlated with (leading to) overload.
2. Psychological "feelings" or their internal states under overload.)

CONTENT

INSTRUCTIONAL STRATEGIES

Choose eight to ten students who have shown interest in the course and divide them into two groups. Give one group the accident scenario for accident type 8, the other group, accident type 9. Explain that group members should study the accident to determine:

1. The manner in which the accident occurred.

2. Factors which contributed to the accident.

3. Things that could be done to eliminate accidents of that type.

Students should be encouraged to use any creative means to present their findings to the class, i.e., role play, pictures, etc.

After student presentations, hang posters #8 and #9.

A brief description of the accident types are given below.

Case Number 8 - Motorist Stop - and - Go.

In this type of accident, the motorist approaches an intersecting street, brings his vehicle to a complete stop, and searches the intersecting street for approaching traffic. The motorist performs his search in a manner that would be considered normal for this situation. When the motorist considers it safe, he proceeds into the intersecting street without having observed the bicyclist approaching. The most common reason for the motorist's failure to observe the bicyclist is that the bicyclist is riding in an unexpected location — on the sidewalk or in the street facing traffic.

To avoid this type of accident, bicyclists should:

1. Ride with traffic, on the roadway.

2. Continually search their environment for such hazards.

3. Never assume that he has been seen and that the motor vehicle will necessarily remain stationary until he has passed.

CONTENT

Case Number 9 - Motorist Unexpected Turn

This type of accident occurs when a motorist makes a turn into the path of a bicyclist. Most of these accidents occur at either the junction of two roadways or the junction of a street and driveway. In most cases, the motorist fails to detect the bicyclist soon enough to avoid the accident. This is so despite the fact that the bicyclist is clearly visible and the motorist searches in the bicyclist's direction before turning.

To avoid this type of accident, the bicyclist must drive defensively. He must assume that he has not been seen and that the driver may not stop/yield until the bicyclist has passed through the junction.

INSTRUCTOR'S LESSON PLAN

TITLE: Lesson 10 — Special Problems

OVERVIEW: There are some environmental factors which make bicycling (or any kind of travel) much more dangerous. This lesson identifies several and suggests ways to moderate the danger.

The main danger discussed is darkness. Bicycle accidents tend to be very serious after dark because motorists usually hit bicyclists while driving at higher speeds. This contrasts with daytime accidents which emphasize slow (turning) motorists or bicyclists running into cars. Two kinds of things can be done to make darkness less dangerous, and they are equally important. First, avoid cars: ride on extremely quiet streets or sidewalks where legal and get way off the roadway when cars are overtaking; better yet, don't ride after dark at all. (This may not be possible, but it is offered as a serious recommendation because of the extreme danger.) Second, be seen: use flashing or steady lights, reflectors, reflective tape and clothing, or whatever; the more, the better. The legal requirements should be considered an absolute minimum to be improved on regularly.

Bad weather presents other dangers while reducing visibility as well. With rain or snow, the roads become slippery and caliper brakes may work poorly. Low sun angles cause glare problems which can make otherwise obvious items invisible.

Case Number 10 is an accident type occurring almost always after dark, to bicyclists riding on the edge of two-lane roadways. They are hit by overtaking motorists who usually never even see them, often with fatal consequences. Almost always the motorist was directly at fault by being slightly off his best path; but the bicyclists rarely had any lighting. The preventive measures for bicyclists were mentioned above: avoid riding in such conditions, or — if they must — be as conspicuous as possible with lights and reflective devices.

PERFORMANCE OBJECTIVES: After completion of this lesson, the student will be able to:

1. Identify the effects of weather on trip safety
2. Identify effects of lighting on trip safety
3. Evaluate road conditions
4. Describe how to prevent bicycle/motor vehicle accidents after dark

EQUIPMENT: 35mm slide projector; flashlight; example of fluorescent and retroreflective materials

MATERIALS: Prepared slides

PREPARATION: Secure examples of fluorescent and retroreflective materials.

CONTENT

I. Sight Limitations

A. It is necessary for all roadway users to communicate with each other.

B. There are special problems that make it more difficult to communicate and ride safely. They are:

1. Camouflage.

a. Either a bicycle or a motor vehicle may simply blend into the scenery and not be seen.

b. By the time a camouflaged vehicle is seen, it is often too late to respond and avert an accident.

2. Darkness.

a. Since sight is diminished, riding in darkness is very dangerous.

b. By the time the bicyclist and motorist see each other, it is often too late to respond and avoid an accident.

3. Glare.

a. The glare from motor vehicle lights can momentarily blind a driver or bicyclist.

b. Some people even react to these lights by closing their eyes for brief periods of time.

c. Glare from a low sun can be particularly bad — dawn, dusk, or all day in the winter.

4. Bad weather.

a. Wet, stormy weather is dangerous because:

1) It takes more distance to stop a vehicle.

2) Heavy rain (and the use of windshield wipers) obstructs vision.

INSTRUCTIONAL STRATEGIES

Review the need for all roadway users to communicate with each other.

1. To predict what other road users will do.

2. To be predictable.

Write the name of each item on the chalkboard as discussed.

Ask students if they have ever heard the word "camouflage" before. How was it used? (Some students may have heard it used in "war" movies.)

Whenever the opportunity arises, the teacher should emphasize the danger of riding when it is dark. It is never very safe for children to ride when it is dark regardless of the safety equipment on the bike.

Note that motorists who have dirty windshields have really serious problems with glare. Ask students whether the windshields are dirty — inside or out — in cars they ride in regularly.

3) Bicyclists may be in a great hurry to get out of the rain and therefore speed, run traffic signs, not concentrate.

b. Although few bicyclists ride in heavy snow it is especially dangerous since it can hide road hazards such as storm grates.

1) It also makes the roadway very slippery and dangerous.

2) It can really obstruct vision — especially for drivers.

5. Hills and curves.

a. Hills are dangerous since one tends to pick up speed and it is more difficult to come to a stop at the bottom.

b. Curves are dangerous because a driver can not see ahead very far and therefore has little time to react if another vehicle appears.

6. Visual obstructions.

a. Visual obstructions hide other vehicles from view until it may be too late to react properly and avoid an accident.

b. Visual obstructions include trees, shrubs, buildings, parked vehicles, etc.

7. Lack of concentration.

a. A good driver (motorist or bicyclist) keeps his mind on his driving so that he is in a position to react properly to avoid any hazard.

b. If a driver is thinking about other things, he may not recognize a hazard immediately and therefore be unable to react quickly enough to avoid an accident.

8. Expectation.

a. Motorists who do not expect to find bicyclists as part of the traffic pattern, either won't see them or won't know how to treat them.

b. It is especially important that bicyclists ride where they are expected and act in a predictable way.

C. Each of these items can cause problems for both motorists and bicyclists.

Explain that the more bicyclists act as though they are driving a motor vehicle (ride with traffic, obey traffic laws, etc.), the more they will fit in with motorists' expectations and therefore will be safer.

Remind students that since bicycles are so much smaller than other vehicles, they are harder to see.

D. One reason motorists fail to perceive bicyclists is that the bike rider is still a fairly uncommon object on the roadway. People tend to see what they expect to see. Also, if the bicyclist is out of place (wrong-way riding, etc.) then the bicyclist is not perceived as readily. Drinking or elderly drivers with restricted vision also compound this problem.

E. The motorist has a special problem seeing bicyclists even on clear days. Sometimes the bicycle and its rider seem to blend into the background.

F. Everyone knows that it is more difficult to see in the dark or at night. It's more difficult to see people in vehicles and more difficult for people to see you. If people can't see each other, they can't communicate.

G. Some roads are well lit by streetlights. But drivers can still have a lot of trouble driving in those streets.

H. During the daytime, the sun's glare can cause the same problems as the bright headlights. The strong light can momentarily blind a person, often causing him to blink, close his eyes or rub his eyes.

I. Bad weather can cause very serious problems. When it is raining, both the motorist and the bicyclist have a difficult time seeing.

   1. Even with windshield wipers, people and things can appear blurry to a motorist.

   2. The bicyclist has many problems in perceiving:

      a. for protection, the bicyclist may pull his head covering so low that it shields his eyes and makes it very difficult to see.

      b. without protection, the rain in his face and eyes can make everything blurry and difficult to see.

      c. in an effort to keep his face dry, the bicyclist may not even look up and around, making it impossible to detect approaching vehicles.

INSTRUCTIONAL STRATEGIES

Display slides 10-1 and 10-2 (examples of camouflage). Can students see the bicycle? Do they think the motorist can see the bicycle? Explain that these are examples of camouflage.

Display slides 10-3 and 10-4 (riding at night) and discuss how this problem affects both the bicyclist and the motorist.

Ask if anyone can guess why. (The glare from motor vehicle lights.)

Most fourth graders will have no trouble understanding the problems caused by darkness or glare. If any student is unsure of the problem glare can cause, a simple experiment will suffice. . .Darken the room (turn off lights and draw blinds) and shine a bright flashlight directly at the student. Explain that this effect is very similar to having a vehicle's bright lights hit you.

Display slides 10-5 and 10-6 (blinding glare) and discuss how this problem affects both the motorist and the bicyclist.

Display slides 10-7 and 10-8 and discuss the problems for both the motorist and the bicyclist.

Ask students what other problems rain may cause. Possible answers include:

1. In an effort to get out of the rain, the bicyclist may ride too quickly for safety.

d. Bicycle caliper brakes do not work well when wet.

J. If you are riding a bicycle when it is dark, or in bad weather, or when glare is a serious problem, everything is more dangerous.

1. You must be even more careful than normal.

2. You must pay even more attention to your surroundings.

3. You must slow down so that you have enough time to:

a. search your environment

b. stop if necessary

c. react

II. Safety Equipment

A. To drive safely when it is dark or in bad weather, you will need to use several pieces of safety equipment:

1. Lights, reflectors and other aids to help motorists see you.

a. required by law for riding after dark, most places:

1) front (white) headlight

2) rear reflector-red

2. If brakes get wet, it takes more time and distance to stop. In dangerous situations, the bicyclist may not have enough time to stop.

3. Makeshift rain clothing or head coverings may be dangerous.

   a. bicyclist may need to remove one hand from the handlebars to hold something over his head. This makes handling and balancing the bicycle much more difficult.

   b. long, floppy clothing can distract the bicyclist and perhaps get caught in the chain or wheels.

Emphasize this!

Remind students that it is more difficult to see and be seen.

Remind students that since they may not see a hazard until it is very close, they will have to react very quickly.

Remind students that motor vehicles cannot stop quickly either and may slide on wet pavement.

Should be bright enough to light the road ahead.
Display slide 10-9 (an accessorized bike).

This is the minimum legal requirement. A red tail light is a simple and very useful addition.

Display slide 10-10 (showing where reflectors are mounted).

Note that:

The top of the rear reflector should be set at least three inches below the seat. Both the rear and front reflectors must be mounted straight so they reflect directly toward the eyes of a driver of an approaching car.

b. CPSC new-bike reflectors: All bikes sold new must have:

1) front reflector: colorless

2) rear reflector: red

3) pedal reflectors: colorless or amber

4) spoke reflectors: colorless or amber in front, colorless or red on rear wheel

c. Good ideas

1) on bicycles

- o taillights (legally required, some places)
- o flashing lights
- o safety flags (retroreflective will help, fluorescent won't after dark)

2) rear view mirrors to help the bicyclist see behind

2. The clothing a bicyclist wears can help motorists see him.

a. Fluorescent material (usually orange or lime-green) is useful in daytime, particularly in cloudy conditions, because it looks much brighter than surrounding materials. It is no help after dark.

b. Reflective ("retro-reflective," which means it reflects straight back to the light source) strips, stripes, spots, vests, etc., work just like bike reflectors and are effective after dark when drivers have their headlights on. They are not useful in daylight.

INSTRUCTIONAL STRATEGIES

The center of each reflector mounted on the wheel should be within 3½ inches of the inside of the rim. Reflectorized tire sidewalls can be used instead of spoke-mounted reflectors.

Display slide 10-11 (showing other safety devices).

Remind students that rear view mirrors can be very important since looking behind is a difficult maneuver, particularly when riding in a very tight place.

If possible, get something fluorescent and something retroreflective and put them side-by-side, along with something else which is comparable in daytime brightness but does not have either of those characteristics. Show all three items to the students under three conditions:

1. Normal bright lighting (indoors or bright sun). All should look "normal" — *none should be particularly impressive.*

2. Cloudy, overcast, outdoor lighting (alternately and optimally, show them indoors with a "black" light). The fluorescent thing should appear bright while the others seem dull.

3. Dark or nearly dark, with each student in turn holding a flashlight in the center of his forehead shining on the three things. The reflector should seem very bright, maybe even "glowing," while the others are relatively dull. Have the students note that the reflector only seems really bright to the student holding the flashlight: reflectors bounce light straight back to the source, not off to the sides.

c. Many items combine both materials; but the bicyclist must know which properties he needs to be equipped properly.

B. Even with the best safety equipment, the bicyclist must act safely.

INSTRUCTIONAL STRATEGIES

Display slides 10-12 and 10-13 (riders wearing fluorescent and retroreflective clothing) to show the value of proper clothing.

Emphasize that just having good equipment does not make a bicyclist safe. A bicyclist must always ride safely, be attentive and obey the laws. This is even more important when riding in darkness or in bad weather.

Assign one of the nine accident types previously described to each group of students (two or three in a group). Explain that students should tell why the accident would be more likely to occur under one of the problem conditions and what the bicyclist should do to prevent the accident. Students may present their findings in any creative way they wish, i.e., role play, pictures, using the overhead projector, etc.

CONTENT

IV. Case Number 10: Motorist Overtake

A. Situation: Detective Wheel is called to an accident. This is what he finds on his arrival.

B. Bicycle/motor vehicle accidents sometimes occur when a motor vehicle collides with the rear of a bicycle.

C. Most often these accidents occur on lightly traveled rural roads during the night hours.

1. Neither bicyclist nor motorist is expecting other traffic.

2. Often the bicycle is not properly equipped for night driving.

3. Often the motorist is driving while tired or after he had been drinking.

D. To prevent this type of accident, the bicyclist should:

1. Be sure his bicycle is well equipped for riding after dark.

2. Wear proper clothing.

3. Ride only on roads that are well lit by street lights.

INSTRUCTIONAL STRATEGIES

Display slide 10-14 which shows an accident scene. Ask if students can determine what caused the accident by viewing the scene. Some of the conditions which should be mentioned include:

1. It is nighttime
2. The road is narrow
3. The road is unlit by street lights
4. The bicyclist is not wearing light clothing with reflective tape.

Ask students to identify reasons why this type of accident occurs. The following causes should be identified during the discussion:

1. Route (road) selection - Discuss with students the importance of route selection.

    a. Riding a bicycle on a narrow road is always dangerous. There is often not enough space to safely pass a parked motor vehicle (moving left places the bicyclist in the way of moving vehicles) and often no space to move far enough to the right to be out of the way of moving traffic.

    b. Riding on an unlit street is extremely dangerous. The bicyclist can not see road hazards and the motorist can not see the bicyclist until it is too late to react properly and avoid an accident.

    c. If one must ride after dark, be careful in selecting one's route. Try for well lit, quiet, fairly wide roads and ride carefully.

2. The bicyclist failed to equip his bicycle with proper lights and himself with proper clothing for driving at night. Some possibilities were discussed earlier. They do not guarantee safety, but they can help a lot.

4. Choose a quiet road with a wide useable shoulder or parallel sidewalk to ride on (if it's legal).

5. Watch for overtaking cars and go way onto the shoulder whenever one is about to pass.

6. Avoid riding after dark unless absolutely necessary.

E. Never ride on the wrong side of the road so that motorists can see you. Motorists aren't expecting you there and riding on the wrong side will make riding when it is dark even more dangerous.

Emphasize this!

Emphasize this!

APPENDIX A

BICYCLE SAFETY GAME

The primary purpose of the Bicycle Safety Game is to develop and exercise students' hazard recognition skills. The requisite skill involves: searching the portion of the visual field in which hazards could appear, differentiating — from the complex visual environment — relevant stimuli that represent clues to hazards, and making correct inferences about the events that the clues may forecast. The hazards depicted in the photographic slides may be hazardous areas, hazardous situations, or highly specific (and sometimes subtle) clues of impending danger. The specifications for the photographs were defined through a careful study of the ten accident types discussed in the Introduction. In almost all cases, the clues depicted in the slide were present when the corresponding accident occurred and could have been used by the bicyclist to anticipate the events that eventually led to the collision.

The photographic slides were taken with a very wide-angle lens so that students would be required to scan a representatively large portion of the visual environment. In most cases, the photographs were taken to simulate a bicyclist's view when riding close to the right-hand curb and looking straight ahead. For this reason, the clues to hazards may or may not appear close to the center of the photograph. The practice of centering the relevant clue was avoided because students would soon learn to expect the clue to appear in a certain area and would not learn to search the entire visual field as is required in a real-life situation.

The student's task is to view the slide and describe the clues to hazards that he can identify and the types of dangerous events that the clues forecast. Students should be encouraged to continue searching the traffic scene until they have identified all the clues listed in the Instructor's Lesson Plans.

A second objective of the Bicycle Safety Game is to teach the bicycle rules of the road. A portion of the slides contain written or illustrated questions about bicycle laws and ordinances and about the meaning of traffic signs. These items will reinforce the material contained in the section of the Workbook titled Bicycle Rules of the Road. Some items were designed to test students' absolute recall of bicycles rules and ordinances. Other items were designed to test students' abilities to interpret the laws and ordinances. The latter items require students to identify which of several courses of action are lawful in a specific traffic context that is depicted in the photographic slides.

OVERVIEW OF PROCEDURES AND RULES

During Unit I, the class will be divided into two teams. The teacher should attempt to equate the composite ability of the two teams during the initial team assignment. The composition of the teams may subsequently be changed if it becomes apparent that one team is so far superior to the other that the competitive spirt is lost.

The procedures and rules of the Bicycle Safety Game are simple and straightforward. A slide is projected onto the screen, the instructor asks a question about

the slide (in some cases the question is contained on the slide itself), and a member of one of the teams is randomly selected to answer the question. If the student first selected is able to provide a complete and acceptable answer, his team is awarded a predetermined number of points. If the student is unable to answer the question or answers it incompletely, a member of the other team will be given the opportunity to respond. If the second student responds correctly, his team will be awarded the points not won by the first team. The team given the first opportunity to respond will alternate regardless of which team won the points for the last item. Team scores will be accumulated throughout the entire course. Each member of the winning team will be given a special prize or award at the end of the course.

PERSONNEL, MATERIAL, AND EQUIPMENT REQUIRED

PERSONNEL REQUIRED

The teacher will be responsible for reading the questions, assessing answers, awarding points, and interjecting instructional comments as required. It is unlikely that the teacher can perform these duties while operating the projector and manipulating score cards as well. Hence, it is recommended that the operation of the projector and score keeping be assigned to two student assistants, one from each team. The student assistants can also be assigned the task of drawing names from the team "hoppers." The teacher may prefer to solicit the aid of two students from a fifth or sixth grade class to serve as permanent assistants throughout the entire course. Permanent assistants from a more advanced grade level would provide greater efficiency and continuity, and could prove useful in maintaining order in the classroom.

MATERIALS AND EQUIPMENT REQUIRED

The materials and equipment required to administer the Bicycle Safety Game are listed below.

- o A 35-mm carousel slide projector and projection screen. The slide projector should be equipped with a remote control device for changing slides and with an automatic focus adjustment device.

- o Photographic slides. The inventory of slides should be mounted in numbered carousel trays.

- o Flashlight pointer. The flashlight pointer will be used by students to point out specific clues that they identify on the slides used for hazard recognition training.

- o Score cards. A variety of score-keeping devices are available. The recommended device consists of three sets of ten cards each that are permanently mounted (side-by-side) in a ring-type binder. Any number between zero and 999 can be generated by flipping the cards. A score-keeping device will be required for each of the two teams.

- o Team hoppers. The team hopper will be used to randomly select the student who will answer a given question. Students' names can be written on ping-pong balls, blocks of wood, or heavy cardboard squares. The objects on

which the names are written will be placed in any type container that will allow remixing the objects each time a name is drawn and replaced.

TEAM SELECTION

The Bicycle Safety Game is most effective when the class is divided into two teams of approximately equal ability. If the instructor has sufficient knowledge of the capabilities of class members, it may be possible to selectively assign students so that the composite ability of the teams is closely matched. Otherwise, it would be best to assign students to teams using a randomization procedure. For a class of N students, the instructor can place N/2 red cards and N/2 blue cards in a small box, mix the cards thoroughly, and let each student draw a card from the box. Students who draw a red card are assigned to the Red Team; students who draw a blue card are assigned to the Blue Team.

After team assignments have been made, team members should be seated together on opposite sides of the room and instructed to sit in the same seat throughout the entire course.

STUDENT ORIENTATION

On the first day the Bicycle Safety Game is played, the instructor should explain the purpose, procedures, and rules of the game.

PURPOSE OF THE GAME

The following monologue contains the major points that should be emphasized when explaining the purpose of the Bicycle Safety Game to the class. The instructor should feel free to modify the monologue as necessary to convey the critical information to the class members.

The Bicycle Safety Game was developed to help you learn two very important types of things. The game will help you understand the meaning of the laws and ordinances that bicyclists must follow when they are riding their bicycles on public streets. In order to score points for your team, you must know and understand all the material contained in the section of your workbook titled Bicycle Rules of the Road. For this reason, you should read this section as carefully as you can and ask your parents or teacher about things you do not understand or that you are unsure of.

The Bicycle Safety Game is also designed to help you see important clues to danger when you are riding your bicycle in traffic. Clues to danger are things you can see that tell you to "Watch out, you are in danger of becoming involved in a collision with a motor vehicle." The ability to see clues to danger is the main difference between an average bicyclist and an expert bicyclist. When experts are riding their bicycles in traffic, they are constantly on the lookout for clues that tell them they are approaching a dangerous place or that tell them something dangerous is about to happen. The clues they see help them avoid making mistakes that lead to a collision with motor vehicles. The clues also help expert bicyclists avoid accidents that happen because the driver of the motor vehicle made a mistake. So, learning to see clues to danger is as important in becoming an expert bicyclist as learning to handle your bicycle with skill.

PROCEDURES AND RULES

Each slide in the slide tray represents an item to be answered and scored. Some slides are printed questions, some slides are drawings of a traffic scene with questions typed beneath them, and some slides are photographs of real-world traffic scenes. The question associated with the photographs of traffic scenes is nearly always the same ("Describe the clues to danger that appear in this picture"), so it was not believed necessary to print the questions on these slides.

The first step in the procedure is to call for the presentation of a slide. When the slide has been presented, the teacher will read the question aloud and will give the class sufficient time to study the picture and/or read the question. It is anticipated that 10 to 30 seconds study time will be required, depending upon the complexity of the item. When the instructor believes the class has had sufficient time to study the slide, a request will be made to draw a name from the appropriate team hopper.

The student whose name is drawn will be given the opportunity to answer the question. A correct and complete answer to the hazard recognition items will require the student to identify the clue (using the flashlight pointer if necessary) and to explain why it represents a clue to danger. If the student's answer is correct and complete, the entire score for the item will be awarded to his team. If the student's answer is correct but incomplete, his team will be awarded partial credit for the item. When incorrect or incomplete answers are given, the instructor will request that a name be drawn from the other team hopper, and the student whose name is drawn will be given the opportunity to answer the question. If the student from the second team answers correctly, the points that were not awarded to the first team will be awarded to the second team. If both students fail to answer the question correctly, the instructor will explain or complete the answer and will proceed to the next item.

Regardless of whether the items are answered correctly or incorrectly, the instructor should summarize the correct answer to each item before proceeding to the next. The instructor may also wish to initiate a class discussion about why the item portrayed in the slide is important to safety. The "Notes," contained in the master list of questions and answers, describe the points that the teacher may wish to discuss after the students have given their answers to the item.

Students who know the correct answer to a question will be inclined to speak out or to coach their fellow team members. It will therefore be necessary to establish a penalty for such behavior. A ten-point penalty should be sufficient to curtail extemporaneous comments and the coaching of team members.

When explaining the procedures and rules of the Bicycle Safety Game to the students, the teacher should emphasize repeatedly that any student in the classroom could be called upon to answer any given item and so every student must pay close attention to every item. The maintenance of each class member's attention on every item was the sole motive for designing the Bicycle Safety Game around a randomized selection procedure.

MASTER LIST OF QUESTIONS AND ANSWERS

This section includes a sequential listing of the questions and answers for the Traffic Safety Game. The number is written on each slide in the event that they are inadvertently disordered.

The score to be awarded for a correct and complete answer is shown directly beneath the answer for each question. The teacher may wish to ask additional questions about an item and give bonus points to the team that answers correctly.

1. QUESTION: Identify the important signs that appear in this picture.

   ANSWER: (A) A stop sign (that is partially obscured by an overhanging tree).

   (B) A one-way sign mounted on a post on the far side of the intersecting street.

   (C) Street markings indicating that all traffic must turn left.

   POINTS: Six

2. QUESTION: What is this bicyclist doing wrong?

   ANSWER: (A) The bicyclist should have come to a complete stop before entering the street.

   (B) The bicyclist should have searched left and right for approaching traffic. She should never have entered the street from the driveway before being absolutely sure there were no cars approaching.

   POINTS: Four

3. QUESTION: In the picture, two roads come together into one road. There is a sign posted where the X is. Which of the four signs above do you think it is?

   ANSWER: Sign A.

   POINTS: Two

4. QUESTION: Describe the clues to danger that appear in this picture.

   ANSWER: (A) The intersection of a driveway and a street is always a hazardous area.

   (B) The trees and shrubs close to the intersection of the driveway and street obscure the view of the street from the driveway and the view of the driveway from the street.

(C) A car is approaching the intersection of the driveway and the street from the left. The roof of the vehicle can be seen in the left-hand portion of the picture.

POINTS: Six

5. QUESTION: It is lawful to attach a front carrier to a bicycle, but they tend to make the bicycle more difficult to balance. (True or False)

ANSWER: True.

POINTS: Two

6. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The bicyclist's view of traffic approaching from the left is obstructed by the wall.

(B) The bicyclist's view of traffic approaching from the left is obstructed by the van.

POINTS: Four

7. QUESTION: Bicycle laws are not real laws, but they are just as important as real laws. (True or False)

ANSWER: False.

POINTS: Two

8. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The hedge blocks the bicyclist's view of motor vehicles that may be approaching from the left.

(B) The hedge blocks the bicyclist's view of pedestrians that may be approaching from the left.

(C) Gravel on driveway surface.

POINTS: Six

NOTE: Bonus points may be given if the student can describe what a bicyclist should do in this type of situation.

9. QUESTION: What does this sign (SIGNAL AHEAD) tell you?

ANSWER: There is a traffic signal ahead.

POINTS: Two

QUESTION: What must you do when you see this sign?

ANSWER: There is a traffic signal ahead. Watch for the light and be prepared to stop if the light turns red.

POINTS: Two

10. QUESTION: What does this sign (NO LEFT TURN) tell you?

ANSWER: Do not attempt a left-hand turn at an intersection where this sign is posted.

POINTS: Two

11. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The walls obstruct the bicyclist's view of traffic approaching from the left and right.

(B) The walls obstruct the bicyclist's view of pedestrians approaching on the sidewalk.

(C) The walls obstruct the motorist's view of the alley.

POINTS: Six

NOTE: Students should be asked what would happen if a motor vehicle suddenly turned into the alley from the street. Students should also be asked what they should do in a situation such as this. Acceptable answers include: ride as far to the right as possible, come to a complete stop before entering the sidewalk, scan both right and left for approaching motor vehicles and pedestrians, and enter the street carefully.

12. QUESTION: A person walking on a road with no sidewalk should walk facing the traffic. (True or False)

ANSWER: True.

POINTS: Two

NOTE: It should be emphasized that the law is different for bicyclists and pedestrians. Time should be spent discussing why the law is different, and why it is safer for bicyclists to ride on the right-hand side of the roadway.

13. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The wall obscures the vision of both a motorist approaching on the street and a bicyclist exiting the driveway.

(B) The street is in a quiet residential neighborhood so the bicyclist would not ordinarily expect a car to be appraoching and the automobile driver would not expect to encounter a bicyclist exiting the driveway.

POINTS: Four

NOTE: It should be emphasized that many of the most serious car-bike accidents occur on residential streets with very little traffic. This is because motorists do not expect to encounter bicyclists and bicyclists do not expect to encounter motor vehicles on quiet residential streets. Members of the class should be asked what a bicyclist should do in this type of situation. The discussion should continue until one of the class members states that the bicyclist should come to a complete stop before entering the street, and scan carefully in both directions before proceeding. This may be formulated as a "bonus" question.

14. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The car obstructs the bicyclist's view of traffic approaching from the left.

(B) The hedge and trees obstruct the bicyclist's view of traffic approaching from the left.

(C) The motorist's view of the bicyclist would be obstructed by the car, hedge, and trees.

POINTS: Six

15. QUESTION: The law allows a bicyclist to ride on whichever side of the street he believes is safe. (True or False)

ANSWER: False.

POINTS: Two

16. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The car may exit the commercial driveway into the path of the approaching bicyclist.

(B) The driver of the green car is looking away from the bicyclist and obviously does not see him.

(C) The sign on the right-hand curb indicates that there is a pedestrian crossing ahead.

POINTS: Six

NOTE: Students should be instructed to always notice which way a motorist is looking. If the motorist is not looking at the bicyclist, the bicyclist should exercise extreme caution. However, if the motorist is looking toward the bicyclist, the bicyclist should never assume that the motorist sees him, even though he may be perfectly visible.

17. QUESTION: What does this (RAILROAD CROSSING) sign tell you?

ANSWER: There is a railroad crossing ahead.

POINTS: Two

QUESTION: What must you do when you see this sign?

ANSWER: Slow down, look and listen for an approaching train, and look for the crossing barrier and flashing red lights. Always cross railroad tracks at right angles to the tracks.

POINTS: Two

18. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is an exit from the service station parking lot.

(B) There is an intersection ahead and to the right.

(C) There is a freeway on-ramp ahead that many motorists will be entering at rather high speeds. A bicyclist who wished to travel straight ahead must cross this uncontrolled traffic lane.

POINTS: Six

NOTE: Crossing a freeway on-ramp is extremely hazardous. Traffic is almost always traveling at a high speed and motorists tend to assume that the right-of-way belongs to them. Any type of uncontrolled Y junction constitutes an extreme hazard area for the bicyclist.

19. QUESTION: This picture shows the driver's view from inside the car. The car is backing out of a driveway. Describe the clues to danger that appear in this picture.

ANSWER: The head of the bicyclist is barely visible over the roof of the parked car.

POINTS: Two

NOTE: This photograph can be used to discuss the difficulty of seeing out of a car. The motorist's vision is obstructed by the roof support, by the parked car, and is impaired by the deep shadows from surrounding trees.

20. QUESTION: Describe the clues to danger that appear in this picture. (Show slide 20A for this question.)

ANSWER: (A) The bicyclist must maneuver around the truck parked along the right curb and must be alert for traffic approaching from the rear.

(B) The parked truck obscures the view of a commercial driveway that intersects with the street at a point just beyond the parked truck. A motor vehicle operator exiting this driveway could not possibly see an approaching bicycle.

(C) A motorcyclist can be seen through the rear window of the white car. This motorcyclist may be preparing to turn left into the driveway. If so, it would be difficult for him to see an approaching bicycle.

POINTS: Six

NOTE: Show slide 20B and explain that if a motorist was parked at the commercial driveway shown in the previous slide, this is the view he would have of the street.

21. QUESTION: When you encounter a flashing red light, you should stop and wait until the light turns green. (True or False)

ANSWER: False

POINTS: Two

22. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The car sitting in the commercial driveway may pull into the path of the bicyclist.

(B) The green and brown station wagon to the bicyclist's left appears to be changing lanes.

(C) The bicyclist is probably riding too far to the left.

POINTS: Six

23. QUESTION: What street markings are shown in this picture?

ANSWER: Crosswalk lines; broken, white, lane divider lines; double yellow lines marking the center of the street; left-turn pocket; solid white line marking the left edge of the left-turn pocket; and stop line.

POINTS: Twelve

QUESTION: Is the brown car breaking the law? What about the bicyclist?

ANSWER: Both vehicles are stopped in the crosswalk. They should not have proceeded past the stop line on the street.

POINTS: Two

24. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The brake lights of the white car are "on." This indicates that the car may be slowing down to make a right-hand turn into the driveway that the blue car is entering.

(B) There is a car in the commercial driveway awaiting an opportunity to enter the street. This car may exit the driveway into the path of the approaching bicyclist.

(C) There is a motorcyclist that is stopped in the turning lane awaiting the opportunity to make a left-hand turn into the commercial driveway. The motorcyclist may turn left into the path of the approaching bicyclist.

POINTS: Six

25. QUESTION: What law is this bicyclist violating?

ANSWER: The bicyclist is not "riding as far to the right as is practicable."

POINTS: Two

26. QUESTION: The purpose of a bike flag is to help you locate your bicycle when it is parked in a crowded bike rack. (True or False)

ANSWER: False.

POINTS: Two

NOTE: A comment should be made about the characteristics and value of bike flags. It should be emphasized that bike flags provide a moving target which tends to attract the attention of motor vehicle operators.

27. QUESTION: A car whose left-turn signal is flashing will turn left. (True or False)

ANSWER: False.

POINTS: Two

NOTE: Students must learn to be alert for active turn-signal lights and to understand their meaning. Students must also learn to never place implicit trust in turn signals (motorists sometimes inadvertently activate their turn signals and sometimes change their minds about turning).

28. QUESTION: Identify the signs that appear in this picture and describe what the signs tell you to do.

ANSWER: (A) A yield sign is painted on the pavement and is mounted on a post.

(B) These signs tell a bicyclist to slow down, scan right and left for vehicles approaching on the intersecting street, come to a complete stop if other vehicles are approaching, and remain stopped until the intersection is clear of all vehicles.

POINTS: Four

29. QUESTION: It is harder for car drivers to see the bicycle on the road than for bicycle riders to see the cars. (True or False)

ANSWER: True

POINTS: Two

30. QUESTION: Is this bicyclist riding unlawfully?

ANSWER: No.

POINTS: Two

31. QUESTION: In this picture, which bicyclist is signaling for a right turn?

ANSWER: Bicyclist C.

POINTS: Two

QUESTION: Which bicyclist is signaling for a left turn?

ANSWER: Bicyclist D.

POINTS: Two

QUESTION: Which bicyclist is signaling to slow or stop?

ANSWER: Bicyclist B.

POINTS: Two

32. QUESTION: For safety, a bicyclist should not give a hand signal while he is turning. (True or False)

ANSWER: True.

POINTS: Two

NOTE: The bicyclist should execute a hand signal prior to initiating his turning movement. When the turning movement is started he should return both hands to the handlebars to ensure safety in executing the turn.

33. QUESTION: What do the arrows in this picture tell you?

ANSWER: The driveway is used both to enter and exit the driveway. When exiting, a bicyclist should stay to the right and watch for vehicles that may be entering the driveway.

POINTS: Two

34. QUESTION: If a bicyclist is not going faster than the signs allow, he is not going too fast. (True or False)

ANSWER: False.

POINTS: Two

NOTE: Strong emphasis should be placed on the importance of speed. A bicyclist may be ticketed for riding "too fast for conditions" regardless of the posted speed limit. There are many situations where the safe speed for bicyclists is far less than the posted speed limit.

35. QUESTION: Which vehicle is entitled to pass through the intersection first?

ANSWER: The vehicle that arrived at the intersection first.

POINTS: Two

36. QUESTION: The law states that a bicyclist must give a hand signal for turning if any other traffic will be affected by his turn. (True or False)

ANSWER: True.

POINTS: Two

NOTE: The law states that a signal must be given in the event any other vehicle may be affected by the movement.

37. QUESTION: What street markings do you see in this picture?

ANSWER: Right turn pocket; solid white line separating left-turn pocket; solid white line separating left-turn pocket from traffic lane; the broken white lane divider lines; and the raised white buttons placed along the lane divider line.

POINTS: Ten

38. QUESTION: What is the lady on the bicycle doing wrong?

ANSWER: If she is proceeding straight ahead, she should ride to the left of the solid white line which separates the traffic lane from the right-turn pocket.

POINTS: Two

39. QUESTION: The law allows a bicyclist to ride facing the car traffic whenever it is safe to do so. (True or False)

ANSWER: False.

POINTS: Two

40. QUESTION: Are these bicyclists riding lawfully?

ANSWER: Yes (unless the student observes that one bicyclist is riding too far from the curb).

POINTS: Two

NOTE: Some of the students may indicate that the bicyclists are following too closely. This is a valid point and may be considered a violation of the law.

41. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The bicyclist's view of the driveway to the right is obscured by the fence.

(B) The street marking — SLOW SCHOOL — and the sign on the right-hand edge of the roadway indicates that there is a school crossing ahead.

POINTS: Four

42. QUESTION: Describe the clues to danger that appear in this picture.

(A) There is a driveway into a private residence to the bicyclist's right.

(B) The left-turn signal of the approaching station wagon is blinking. It can be seen in the picture.

(C) The bicyclist is riding in heavy shadow and may not be seen by the motorist.

(D) The bicyclist's view of the driveway is obscured.

NOTE: One of the frequently occurring accidents involves a car turning left into the path of an approaching bicycle. Bicyclists should be conditioned to exercise extreme caution when they observe a vehicle approaching from the front that may turn left into a driveway ahead. It should be emphasized again and again that the intersection of two streets or of a street and driveway are always hazardous areas.

43. QUESTION: The law says a bicyclist may carry a package, but must always have one hand free for steering. (True or False)

ANSWER: True.

POINTS: Two

NOTE: Carrying a package in one hand is lawful but it is not a safe thing to do, especially on a bicycle equipped with hand brakes. A bicyclist should always have one hand for signaling and one for steering.

44. QUESTION: Bicycle riders must obey highway signs and signals just as motor vehicle drivers are required to do. (True or False)

ANSWER: True.

POINTS: Two

45. QUESTION: What does this (CROSSROAD) sign tell you?

ANSWER: There is a crossroad ahead.

POINTS: Two

QUESTION: What must you do when you see this sign?

ANSWER: Slow down and watch for cars approaching from the left and right and for approaching cars that may turn left in front of you.

POINTS: Two

46. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) Water in roadway.

(B) Gravel and mud in roadway.

(C) The bicyclist is approaching an uncontrolled intersection (an intersection with no stop signs or signals).

NOTE: Students should be asked to describe what a bicyclist should do in this situation. The bicyclist must first cope with the water, mud, and gravel in the roadway. He should slow down and ride slowly through the wet area, or he should slow down and check for traffic approaching from the rear before riding around the wet area. Then the bicyclist must cope with the uncontrolled intersection. He should scan carefully in both directions and come to a complete stop if he sees an approaching car and it is not perfectly clear that the bicyclist can clear the intersection before the car arrives. This involves a "safe gap" judgment on the part of the bicyclist.

47. QUESTION: Shown here are two bicyclists passing slow cars. Which bicyclist is breaking the law?

ANSWER: Bicyclist B.

POINTS: Two

NOTE: Lines in the middle of the street cannot be crossed to pass another vehicle.

48. QUESTION: What street markings are shown in this picture?

ANSWER: The words "STOP" and the solid white stop line.

POINTS: Four

QUESTION: Why did the street designer paint the words "STOP" on the street when there is a stop sign at the intersection?

ANSWER: The street is so wide at this point that the stop sign is difficult to see when you are in the middle of the street and close to the intersection. Also, it is not uncommon to use both street markings and signs at dangerous intersections to ensure that the word "STOP" appears whether the operator is looking right or straight ahead.

POINTS: Two

49. QUESTION: A bicyclist is not required to stop at a stop sign if there is no other traffic around. (True or False)

ANSWER: False.

POINTS: Two

50. QUESTION: What should a bicyclist do in a situation like this?

ANSWER: Slow down or stop until he is sure that the car driver sees him.

POINTS: Two

51. QUESTION: What must you do when a traffic signal changes from green to yellow?

ANSWER: Slow down and be prepared to stop.

POINTS: Two

52. QUESTION: Point to the bicyclist who is stopped in the correct position to: make a right-hand turn; make a left-hand turn; proceed straight ahead. (Use slide 52A for this question.)

ANSWER: (A) The bicyclist who is closest to the right-hand curb is in the correct position to make a right-hand turn.

(B) The adult bicyclist located closest to the center of the street is in the correct position to make a left-hand turn.

(C) The bicyclist who is closest to the right-hand curb is in the correct position to proceed straight ahead.

POINTS: Six

NOTE: The bicyclist who stopped in the center of the street is in an extremely vulnerable position if a motor vehicle approaching from the rear has difficulty stopping. The next two slides show what

could happen if a car had difficulty stopping. (Show slides 52B and 52C at this point.)

53. QUESTION: When crossing a sidewalk, bicyclists must always yield the right-of-way to pedestrians. (True or False)

ANSWER: True.

POINTS: Two

54. QUESTION: It is all right to carry a passenger on the handlebars in a residential district, but not in a business district. (True or False)

ANSWER: False.

POINTS: Two

55. QUESTION: Is this bicyclist violating the law?

ANSWER: Yes. She is riding on the wrong side of the street.

POINTS: Two

56. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The red car may turn left into the path of the bicyclist.

(B) The blue car may turn left into the path of the bicyclist.

(C) The shadow indicates that the drivers of each car are looking into the sun.

POINTS: Six

57. QUESTION: Left-turn lanes and pockets are for motor vehicles only and must not be used by bicyclists. (True or False)

ANSWER: False.

POINTS: Two

NOTE: It should be emphasized that the use of left-turn lanes and pockets is lawful but may be very unsafe.

58. QUESTION: Look at the following sequence of pictures and indicate whether the bicyclist is violating the law. (Show the sequence of nine slides 58A through 58I.)

ANSWER: The bicyclist is not violating a law but he is violating the important safety rule, "ride in a straight line."

POINTS: Two

NOTE: Time should be spent discussing the way a bicyclist should ride in a situation with intermittently parked cars. It is generally recommended that bicyclists ride as close to the right-hand curb as possible. But, when a bicyclist must ride along a street where parked cars are encountered frequently, it is better to ride in a straight line along the left-hand edge of the parking lane than to swerve in and out of the spaces between parked cars. One problem is the bicyclist's visibility to motorists. The visibility problem is illustrated by the slides that show the bicyclist almost completely obscured by a parked car. A second problem is swerving too wide when passing parked cars. It is difficult for even an experienced bicyclist to avoid swerving too far into the traffic lane when executing this type of maneuver. Finally, even if an approaching motorist does see the bicyclist, the motorist is uncertain about what the bicyclist is going to do when he sees him swerving to the left to pass the parked car.

There is no absolute rule that a bicyclist can follow in deciding whether to ride inside or along the left edge of a parking lane. Students must gain a clear understanding of the factors that must be considered in selecting the safest strategy for the particular situation they are in.

59. QUESTION: Pedestrians have the right-of-way at intersections whether or not there is a marked crosswalk. (True or False)

ANSWER: True.

POINTS: Two

NOTE: The law states that the driver of a vehicle shall yield the right-of-way to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at an intersection. Bonus points could be given to the student who is able to describe a marked and an unmarked crosswalk.

60. QUESTION: What must you do when a traffic signal changes from red to green?

ANSWER: Wait until it is safe, yield right-of-way to pedestrians, allow a safe distance before turning in front of moving vehicles, then go.

POINTS: Two

61. QUESTION: The bicyclist should speed up to make sure he gets through the intersection before the light turns red. (True or False)

ANSWER: False.

POINTS: Two

NOTE: A bicyclist should never enter an intersection on a yellow light. Because of the slower speed of the bicycle, there is little chance that he will be able to pass through the intersection before the light turns red.

62. QUESTION: Are these bicyclists violating the law?

ANSWER: Yes. They are riding straight ahead in a right-hand-turn-only lane.

POINTS: Two

63. QUESTION: The law states that every person riding a bicycle has the same rights and responsibilities as the driver of a motor vehicle. (True or False)

ANSWER: True.

POINTS: Two

64. QUESTION: Signs painted on the street, like "RIGHT TURN ONLY," are not meant for bicyclists. (True or False)

ANSWER: False.

POINTS: Two

65. QUESTION: The bicyclist should continue through the intersection because the blue car will stop at the stop sign. (True or False)

ANSWER: False.

POINTS: Two

NOTE: Although the bicyclist does indeed have the right-of-way, he should never assume that a motor vehicle will stop at the stop sign. The bicyclist should slow down until he is sure the car will stop.

66. QUESTION: A flashing red traffic light means the same as a stop sign. (True or False)

ANSWER: True.

POINTS: Two

67. QUESTION: Packages cannot be carried by a bicyclist unless his bicycle is equipped with a front or a rear carrier. (True or False)

ANSWER: False.

POINTS: Two

68. QUESTION: Describe the clues to danger that appear in this picture.

(A) There is an open parking space in front of the small white car that appears in the lower right-hand corner of the picture.

(B) The backup lights of the station wagon are in operation, indicating that the driver has the gear shift in the reverse position.

POINTS: Four

NOTE: The implication of these two clues is that the station wagon may be preparing to back into the parking space. Students should be asked what a bicyclist should do when they encounter a situation such as this.

69. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The maroon car is in the process of changing lanes.

(B) There is a stop sign (next to the telephone pole on the right) that is difficult to see against the background.

POINTS: Four

70. QUESTION: A flashing yellow light means: be careful, slow down, and watch for cross traffic. (True or False)

ANSWER: True.

POINTS: Two

71. QUESTION: Signs are sometimes painted on the pavement. (True or False)

ANSWER: True.

POINTS: Two

72. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The car parked on the right-hand shoulder of the roadway is a hazard. The car may pull out in front of the bicyclist, the bicyclist must travel into the traffic lane in order to pass the car, and the driver of the vehicle may open his door into the path of the bicyclist.

(B) The roadway ahead narrows because of the positioning of the telephone pole. In point of fact, it would be very difficult for two cars and a bicycle to pass safely at this point.

POINTS: Four

73. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The view of the driveway to the right is obstructed by a stone wall.

(B) There is a car sitting in the driveway just beyond the stone wall. This car may be occupied and the driver may be preparing to back into the street.

(C) There is a sign in the middle of the street that is yellow. Although the sign cannot be read from this distance, it is known that yellow signs always communicate important information about conditions ahead.

POINTS: Six

74. QUESTION: What should this bicyclist do?

ANSWER: The bicyclist should slow down or stop until he is sure that the driver of the blue car is not going to open the car door into his path.

POINTS: Two

75. QUESTION: What must you do when you encounter a flashing yellow traffic light?

ANSWER: Slow down, look carefully, watch for cross traffic and when safe proceed.

POINTS: Two

76. QUESTION: Look at this series of pictures and describe the things the bicyclist did wrong. (Show sequence of five slides — 76A through 76E.)

ANSWER: (A) The bicyclist started her left-hand turning movement from the right-hand lane.

(B) The bicyclist gave no hand signal prior to starting her turn.

(C) The bicyclist did not correctly judge the closing velocity of the oncoming car. That is, the car had to slow down and swerve to avoid a collision with the bicyclist.

POINTS: Six

77. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The stop sign at the intersection is difficult to see because the sun is low in the sky.

(B) The bicyclist's view of the intersecting road is obscured by trees and shrubs (both left and right).

(C) The roof of an approaching car can be seen over the bushes in the left-hand portion of this picture.

POINTS: Six

78. QUESTION: Which bicyclist or bicyclists are violating the law?

ANSWER: Bicyclist A and bicyclist B.

POINTS: Four

NOTE: Bicyclist A is riding on the wrong side of the street. Bicyclist B is not riding as far to the right as he should be.

79. QUESTION: What does this (CURVE SIGN) sign tell you?

ANSWER: There is a right-hand and then a left-hand turn ahead.

POINTS: Two

80. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is an open parking space in front of the small white sports car.

(B) The front wheels of the white station wagon are pointed toward the parking space.

POINTS: Four

NOTE: It should be emphasized that the front wheels of a slow moving vehicle often provide an excellent indication of what the driver is planning to do. In this case, it is fairly obvious that the driver is planning to parallel park in the parking space shown in the picture.

81. QUESTION: When using a crosswalk, a bicyclist is allowed either to walk his bicycle or to ride it slowly. (True or False)

ANSWER: False.

POINTS: Two

NOTE: Students should be told that bicyclists are considered the same as pedestrians when they are walking their bicycles, but are the same as motor vehicles when riding. Hence, it is lawful to walk a bicycle in a crosswalk but unlawful to ride it.

82. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The outline of the driver's head appears through the rear window of the green truck.

(B) The image of a driver appears in the side mirror of the green truck.

(C) The front wheels of the green truck are pointed toward the street.

POINTS: Six

NOTE: All of these clues indicate that the driver may be preparing to open the car door or may be preparing to exit the parking space.

83. QUESTION: Which one of the following ways (Path A, B, or C) of making a left turn is against the law?

ANSWER: Path B.

POINTS: Two

QUESTION: Which one of the following ways (Path, A, B, or C) of making a left turn is the safest way?

ANSWER: Path C.

POINTS: Two

NOTE: It is important that students recognize that a left-hand turn is a very hazardous maneuver and that many factors must be considered (traffic volume, number of traffic lanes, type of signs/signals, and their own ability) in selecting the "best" way to execute a left-hand turn.

84. QUESTION: A bicyclist may ride in either direction on a one-way street so long as he rides close to the curb. (True or False)

ANSWER: False.

POINTS: Two

85. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There appears to be a person sitting in the passenger seat of the green truck.

(B) There is a yellow van parked adjacent to the green truck that may also be occupied.

POINTS: Four

NOTE: Students should be asked what kinds of things could happen in this situation if the bicyclist attempts to ride between the green truck and the yellow truck. If the passenger of the green truck opens the right-hand car door, the bicyclist would be unable to maneuver around it because the yellow truck would be in the way. Similarly, if the driver of the yellow truck opens the left-hand door, the bicyclist would be unable to maneuver around it because the green truck is in the way. The driver of the green truck may turn right to parallel park, in which case the bicyclist would be forced into the yellow truck or into the curb. When faced with a situation such as this, the bicyclist should slow down or stop until she is absolutely certain what is going to happen.

86. QUESTION: What street markings are shown in this picture?

ANSWER: Left turn pocket; stop line at the end of the left-turn pocket; solid white line separating the left-turn pocket from the traffic lane; broken white lane divider line; and raised buttons positioned along the lane divider line.

POINTS: Ten

87. QUESTION: What street markings are shown in this picture?

ANSWER: Pedestrian crosswalk; stop line; double yellow line marking the center of the street; solid white line separating the right-turn pocket from the traffic lane; and broken white lane divider line (barely visible between the shoulders of two female pedestrians).

POINTS: Ten

QUESTION: Is the bicyclist shown in this picture doing anything wrong?

ANSWER: No, it is lawful for bicyclists to "walk" their bicycles in a crosswalk.

POINTS: Two

88. QUESTION: What must you do when you encounter a stop light?

ANSWER: Stop at the white line or crosswalk, stay out of the intersection, and wait for the green light.

POINTS: Two

89. QUESTION: It is lawful for a bicycle to overtake and pass a slow-moving vehicle on the left. (True or False)

ANSWER: True.

POINTS: Two

NOTE: This is another example of a maneuver that is lawful but often hazardous. Students may be asked to explain when passing a slow-moving vehicle on the left is unsafe.

90. QUESTION: What must you do when you encounter a flashing red traffic signal?

ANSWER: Stop and wait until it is safe to go. Yield right-of-way to other vehicles and pedestrians like you would when you come to a stop sign.

POINTS: Two

91. QUESTION: A driver who wants to make a right turn is usually looking to his left. (True or False)

ANSWER: True.

POINTS: Two

NOTE: Considerable time should be spent discussing where motorists scan and where they do not tend to scan. This is of particular relevance for the "right-turn accident" and for the accident where "the bicyclist is riding on the wrong side of the street."

92. QUESTION: This bicyclist has her head turned as far as she can. Can she see the white car approaching from the rear?

ANSWER: No.

POINTS: Two

NOTE: When a bicyclist keeps both hands on the handlebars, head rotation and torso rotation are very limited. The bicyclist in this picture can see about half of the blue station wagon shown on the right side of the scene. Even then, the station wagon appears in her peripheral vision so she cannot see it clearly. The white car approaching from the rear will not appear in her peripheral vision until the car is only a few feet away. A limitation in rear vision constitutes an extreme hazard and apparently causes many of the accidents that occur in Santa Barbara. Problems associated with rearward vision should be discussed extensively by the class.

93. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The stop lights of the station wagon are in operation indicating that the driver is stopping.

(B) There is an open parking space in front of the small white sports car.

POINTS: Four

94. QUESTION: The law permits bicyclists to make U-turns in some places where it is illegal for cars to make them. (True or False)

ANSWER: False.

POINTS: Two

NOTE: A U-turn should be defined.

95. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The flowers and shrubs on the right obstruct the bicyclist's view.

(B) The yield signs painted on the street and mounted on the post indicate that the bicyclist should be prepared to yield the right-of-way to approaching traffic.

POINTS: Four

NOTE: Students should be asked to describe the path they would follow if they wished to turn left at this intersection.

96. QUESTION: Describe the clues to danger that appear in this picture. (Show slide 96A for this question.)

ANSWER: (A) The shadow of the bicyclist.

(B) The glare off the windshield of the red van.

POINTS: Four

NOTE: Expert bicyclists say that their shadow always points toward danger. A long shadow such as this occurs only when the sun is low in the sky and when the sun is in back of the bicyclist. The implication, of course, is that a motorist looking at a bicyclist will be looking directly into the sun and will have difficulty seeing. Under these circumstances, the bicyclist should never assume that he has been seen by the motorist. Slide 96B simulates the view a motorist would have when looking into the sun.

97. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: The backup lights of the green car are on, indicating that the car is preparing to back out of the driveway.

POINTS: Two

98. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The approaching car cannot see the approaching bicycle.

(B) The approaching bicycle cannot see the approaching car.

(C) The bicyclist is difficult to see against the rock wall.

(D) There are no stop signs or stop lights to control traffic passing through this intersection.

(E) The bicyclist may wish to make a left turn and may cut the corner too closely, thereby intersecting the path of the automobile.

POINTS: Ten

99. QUESTION: The law tells the driver of the car that he must let the bicycle cross first. (True or False)

ANSWER: True.

POINTS: Two

NOTE: The law states that when two vehicles enter an intersection at the same time, the driver of the vehicle on the left shall yield the right-of-way to the driver of the vehicle on his right. It should be emphasized, however, that a bicyclist in this type of situation should never proceed until he is absolutely sure that the motor vehicle intends to yield the right-of-way.

100. QUESTION: What should this bicyclist do?

ANSWER: The bicyclist should remain stopped until the truck has cleared the intersection.

POINTS: Two

NOTE: The truck driver's attention is directed at the pedestrian. When the pedestrian has cleared the intersection, the truck driver will proceed, probably without scanning to his right. The bicyclist should not assume that she has been seen by the truck driver.

101. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: The green truck ahead of and to the right of the bicyclist appears to be occupied. The driver of this vehicle may open the left door into the path of the bicyclist.

POINTS: Two

102. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The brown car in the driveway to the right is parked across a sidewalk and is partially in the street. It is unlikely that a motorist would leave a car parked in this manner, so it is probable that the car is preparing to back into the street.

(B) There is a shadow in the car that appears to be the outline of a driver. Although the bicyclist cannot be sure that this

shadow is, in fact, a driver, he should assume that the car is occupied (and that the driver is preparing to back into the street) until he gets close enough to see more clearly.

POINTS: Four

NOTE: The class should be asked what a bicyclist should do in this circumstance. The students should answer that a bicyclist should slow down or stop until he makes sure whether or not the car is occupied. If he finds the car is occupied, he should not attempt to pass until he is sure that he has been seen by the driver.

103. QUESTION: Why is this a dangerous intersection for a bicyclist who wants to ride to the left? (Both roadways are two way.)

ANSWER: The bicyclist must bear left across a traffic lane that will be used by motorists who are proceeding straight ahead.

POINTS: Two

NOTE: Many car-bike accidents occur in situations like this. Apparently there is some confusion on the part of both the motorist and the bicyclist about who has the right-of-way. A motorist who is proceeding straight ahead assumes that he has the right-of-way. A bicyclist who is bearing left, following a road that is obviously the primary road, assumes that he has the right-of-way. Students should be cautioned to be particularly careful when they encounter this type of intersection.

104. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The bicyclist is approaching an underpass where the width of the street decreases.

(B) The sign indicates that there is a roadway ahead on which motorists may be making right-hand and left-hand turns.

POINTS: Four

105. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) A steep hill increases the bike's speed and braking distance.

(B) The car's stop lights are on, indicating that it is slowing down.

(C) The car appears to be bearing right and may cross the bicyclists' intended path.

(D) There is a stop sign at the bottom of the hill.

(E) There is a right-turn-only lane at the bottom of the hill.

(F) The intersecting highway at the bottom of the hill appears to be a heavily trafficked and high-speed roadway.

POINTS: Twelve

106. QUESTION: How many vehicles appear in this picture?

ANSWER: Two.

POINTS: Two

NOTE: Once the bicyclist has been seen by all the students (the bicyclist is adjacent to the Volkswagen), a discussion should be held on bicyclist visibility. The discussion should center on: the effect of background on bicyclists' visibility, the effects of clothing and bicycle color on visibility, and the consequences of poor visibility. This shot is quite realistic. It was taken from an intersecting street and accurately portrays the view a motorist would have by glancing to his right.

107. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is a street intersection ahead.

(B) The stop lights of the station wagon are on.

POINTS: Four

NOTE: The implication of these two clues is that the car may be preparing to turn right onto the intersecting street. There is no clear indication in this picture that the driver of the station wagon is, in fact, planning to turn right. In fact, the car is so far to the left of the traffic lane that one would not expect the driver to turn right. However, it should be emphasized that not every driver makes a right-hand turn in the proper or expected way. Some drivers swing left before initiating their right-hand turning movement. Such a "wide turn" is unlawful, but many motorists execute their turns in this manner.

108. QUESTION: Explain why this bicyclist may be in danger. (Use slide 108A for this question.)

ANSWER: The bicyclist has just ridden from behind a block wall. When the bicyclist moves a few feet further along the street, he will be hidden from view by the roof support of the car. A motorist who

is backing out of a driveway may not have been looking in the direction of the bicyclist during the short period of time that it takes the bicyclist to travel from behind the block wall to the point where he is obscured from view by the roof support of the car. Hence, it is possible that the driver of the car may back into the path of the approaching bicycle.

POINTS: Two

NOTE: Slides 108B and 108C illustrate this point. In the second slide of the sequence, the bicyclist is completely obscured from view. In slide 108C, the bicyclist's head and shoulders appear.

109. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is a driveway ahead and to the right.

(B) The approaching car is bearing left and appears to be preparing to make a left-hand turn into the driveway. However, the left-hand turn signal is not in operation.

(C) The bicyclist is driving in a heavily shadowed area and will be difficult for the motorist to see.

(D) The driveway is obscured from the bicyclist's view by trees and shrubs.

POINTS: Eight

110. QUESTION: The law states that all new bicycles shall be equipped with reflectorized pedals. (True or False)

ANSWER: True.

POINTS: Two

NOTE: The law states that, "On and after January 1, 1972 no person shall sell a new bicycle or pedal for use on a bicycle that is not equipped with a reflector, of a type approved by the Department, on each pedal of such bicycle which is visible from the front and rear of the bicycle during darkness from a distance of 200 feet."

111. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is a car (white station wagon) that may turn right at the intersection.

(B) There is a car approaching from the front that could possibly make a left-hand turn at the intersection.

POINTS: Four

112. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The outline of a driver's head can be seen through the rear window of the green truck.

(B) The wheels of the green truck are pointed into the traffic lane, indicating that the vehicle may be preparing to exit the parking space.

POINTS: Four

113. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The shadow indicates the the sun is low in the sky directly behind the bicyclist. A motorist looking toward the bicyclist will be looking into the sun and may be blinded by the sun's glare to such an extent that he may fail to see the approaching bicyclist.

(B) The Volkswagen is preparing to bear right across the path of the bicyclist.

(C) There is a car stopped on the far side of the road that may turn left into the path of the bicyclist.

POINTS: Six

NOTE: This picture illustrates a very significant problem in bicycle riding. The Volkswagen constitutes a very apparent and immediate hazard to the bicyclist. So, the bicyclist's entire attention will be directed toward avoiding this hazard. Attention to such obvious and immediate hazards often leads to a failure to perceive other hazards, such as the car in the left lane that is preparing to turn left. A bicyclist who is adept at handling his vehicle would have little difficulty avoiding a crash with the Volkswagen; but unless he decreases his speed, he may find that he has avoided a crash with one vehicle only to be faced with an imminent crash with another vehicle.

114. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is a street intersection ahead and to the right.

(B) There is a car in a position to make a right-hand turn onto the intersecting street.

POINTS: Four

115. QUESTION: What street markings are shown in this picture?

ANSWER: A double solid-yellow striped line that marks the center line of the street.

POINTS: Two

QUESTION: You see a driveway on the left-hand side of the street. Can a bicyclist ride across the double yellow line if he wishes to turn left into the driveway?

ANSWER: Yes.

POINTS: Two

QUESTION: Can a bicyclist ride across the double line if he is riding out of the driveway and wishes to make a left-hand turn?

ANSWER: Yes.

POINTS: Two

NOTE: Students should understand that double solid yellow lines indicate that one vehicle cannot cross the lines to pass another. The lines were placed on the street because it is an unsafe place to pass (because of limited visibility or heavy traffic). Hence, although it is lawful to cross double solid-yellow lines to enter or exit a driveway, it is a very hazardous maneuver.

116. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is a commercial driveway ahead and to the right.

(B) There is a car approaching from the opposite direction that may turn left into the commercial driveway. This car is in a left turn pocket so it is almost certain that the car will turn left.

POINTS: Four

117. QUESTION: The law tells the driver of the car that he must let the bicycle cross first. (True or False)

ANSWER: True.

POINTS: Two

NOTE: The law states that the driver of a vehicle approaching an uncontrolled intersection shall yield the right-of-way to a vehicle which has already entered the intersection, regardless of whether the vehicle has entered from the left or right.

118. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) The backup lights of the green parked car are "on," indicating that the car may be preparing to exit the parking space.

(B) There is a driveway ahead and to the right that is obscured from view by the parked cars.

POINTS: Four

119. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) There is an intersection ahead.

(B) The brown car may pull ahead or turn right into the path of the bicyclist.

(C) The white car approaching from the front may turn right or left into the path of the bicyclist.

(D) The bicyclist is riding in a heavily shadowed area and will be difficult to see.

POINTS: Eight

120. QUESTION: Orange safety vests make bicyclists more visible at night. (True or False)

ANSWER: False.

POINTS: Two

NOTE: Orange vests increase bicyclists' visibility during daylight hours but are of little value at night. White clothing is better than the orange safety vests for night riding.

121. QUESTION: These bicyclists are crossing the roadway 50 yards before the intersection. Name several things the motorist is doing at this point that may distract him from recognizing the riders.

ANSWER: (A) Changing lanes

(B) Hurrying to get through the intersection before light changes

(C) Searching ahead where he expects cross traffic

(D) Preparing to signal his moves

POINTS: Eight

122. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) Pedestrian not looking

(B) Second pedestrian might be present

(C) Parked cars may have a driver opening door or pulling out

(D) Intersection ahead

POINTS: Eight

123. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) Two kids on one bike

(B) Bush blocks view of intersection

POINTS: Four

124. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) Open car door

(B) Traffic

(C) Major intersection ahead

POINTS: Six

125. QUESTION: Two bicyclists are crossing the roadway. Which procedure is legal?

ANSWER: The bicyclist walking is legal.

POINTS: Two

126. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) Extreme traffic pressure

(B) Many sign distractions

(C) Many commercial entranceways with cars entering and exiting

(D) Drivers changing lanes for position

(E) Yellow light

POINTS: Ten

127. QUESTION: Describe the clues to danger that appear in this picture.

ANSWER: (A) Truck overtaking bicyclist

(B) Dense shrubbery on right blocks entranceway to shopping mall

(C) Wet pavement

POINTS: Six

128. QUESTION: Give two reasons this motorist may not see a bicyclist.

ANSWER: (A) The bicyclist approaching on the right is riding against traffic. The motorist will not expect him.

(B) A bicyclist approaching on the left is on the sun glare side of the motorist, and may go undetected.

POINTS: Four

129. QUESTION: List all the hazard clues in this scene.

ANSWER: Dogs, logs blocking view of driver, car might back out, other cars parked diagonally might back out while bicyclist is focusing on dogs, pedestrians exiting between cars.

POINTS: Six

130. QUESTION: What is this bicyclist doing wrong?

ANSWER: (A) Riding against the flow of traffic.

(B) Riding barefooted.

POINTS: Four

QUESTION: What other hazards are depicted?

ANSWER: (A) Diagonal parking (motorists are unlikely to scan in the direction of the bicyclist).

(B) Pedestrians could exit between cars.

POINTS: Four

APPENDIX B

BICYCLE SAFETY QUIZ

1.	T	F	Bicycle laws are not real laws, but they are just as important as real laws.
2.	T	F	The law allows a bicyclist to ride on whichever side of the street he believes is safe.
3.	T	F	A car whose left-turn signal is flashing will always turn left.
4.	T	F	A bicyclist is not required to stop at a stop sign if there is no other traffic around.
5.	T	F	It is harder for car drivers to see a bicycle on the road than for bicycle riders to see a car.
6.	T	F	Bicyclists should not ride their bikes at night.
7.	T	F	Bicycle drivers must obey highway signs and signals just as motor vehicle drivers are required to do.
8.	T	F	If the car driver is looking in your direction, he always see you.
9.	T	F	Following all traffic laws helps make you predictable.
10.	T	F	Drivers have difficulty seeing bicycles only at night.
11.	T	F	When crossing a sidewalk, bicyclists must always yield the right-of-way to pedestrians.
12.	T	F	When using a crosswalk, a bicyclist is allowed either to walk his bicycle or to ride it slowly.
13.	T	F	Signs painted on the street, like "Right Turn Only," are not meant for bicyclists.
14.	T	F	If the light is yellow, the bicyclist should speed up to make sure he gets through the intersection before the light turns red.
15.	T	F	The law allows a bicyclist to ride facing the car traffic whenever it is safe to do so.

16 - 20. Put a check ( ) beside the picture(s) which show a bicyclist violating the law.

21 - 25. Put a check ( ) beside the picture(s) which show a bicyclist violating the law.

26 - 30. Draw a line connecting the word with its meaning.

26.	Predict	Too much to handle
27.	Search	To do something
28.	Overload	To look for something
29.	Communicate	To let someone go ahead of you
30.	Yield	To know in advance what will happen
		To make someone aware of your thoughts

31 - 35. Draw a line connecting the word with its meaning.

31.	Glare	To come together and become one
32.	Camouflage	Something that can be dangerous
33.	Obstruction	Something that prevents movement or seeing
34.	Hazard	To hide or blend into the background
35.	Reflector	Something that sends light back from its surface
		Very bright, unwanted light

36. (___) In the picture above, which bicyclist is signaling for a right turn?

37. (___) In the picture, which bicyclist is signaling for a left turn?

38. (___) Which bicyclist is signaling to slow down or stop?

39. (___) Which one of the ways pictured below (Path A, B or C) of making a left turn is against the law?

40. (___) Look at the picture below. Where should the bicyclist stop before making a right hand turn?

41 - 45. Circle the correct answer.

41. Bicycle drivers communicate with other drivers:

A. With lights

B. With horns or bells

C. With hand signals

D. All of the above

42. A bicycle driver should stop at a stop sign or signal:

A. Only when there are motor vehicles approaching

B. Never — bicycles are not required to stop

C. At all points where stop signs or red signals are present

D. Only when he feels like it

43. The hand signal should be given:

A. Immediately prior to turning

B. At least 50 feet before turning

C. One block before turning

D. Only when traffic is present

44. Bicycles should be driven:

A. Down the center line

B. As close to the left hand edge of the road as possible

C. Just to the left of the center line

D. As close to the right hand edge of the pavement as possible

45. It is legal to hitch a ride on a motor vehicle:

A. When the driver says it's okay

B. Never — it is against the law

C. When there is little or no traffic

D. When the driver isn't aware of it