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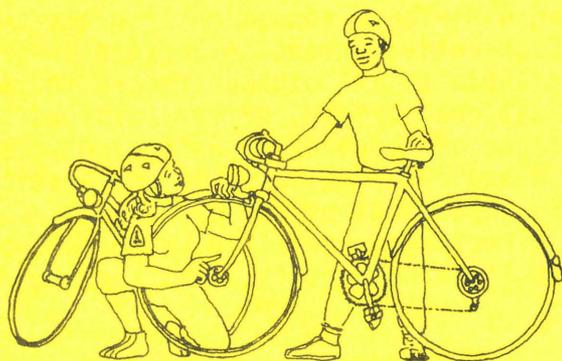
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A Guide For The Bicycle Commuter
Michigan State University Cooperative Extension Service
4-H Club Bulletin
Bonita Dostall Neff, State Bicycle Specialist
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A GUIDE FOR THE BICYCLE COMMUTER



4-H—YOUTH PROGRAMS
COOPERATIVE EXTENSION SERVICE
MICHIGAN STATE UNIVERSITY

Please give credit to Michigan Cooperative Extension Service, 4-H—Youth Programs when quoting from this guide.

The sections on Traffic Principles, Techniques, Emergency Maneuvers and Hazards are based on materials from *Effective Cycling*, League of American Wheelman (LAW) and the 4-H Resource Guide: *The Art and Science of Lifetime Bicycling*.

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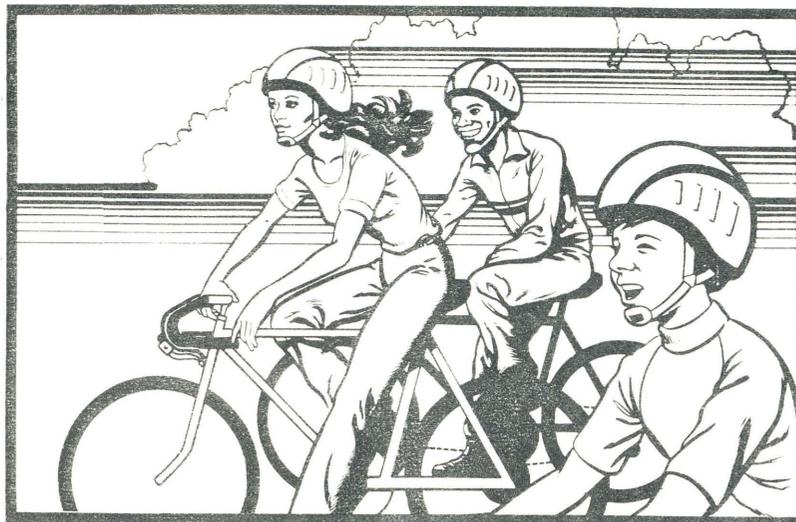
by

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WHY COMMUTE?

Bicycling is extremely popular in the state of Michigan. A survey by the Department of Natural Resources (DNR) in 1976 showed bicycling to be the top outdoor activity in numbers of participation - 91.9 million, and second in hours of activity - 134 million.

Other reasons for increasing the interest in bicycling include the energy needs and concerns. Shortage of and waste of fuel are answered most readily by the switch to the bicycle, the most efficient form of transportation.

Evidence continues to grow to support that the 11-mile commute (round trip) is a possible commuter trip for the cyclist. A survey conducted by State 4-H identified increased cycling commuting by those 12 years and above. Following is a table indicating the usage of the bicycle in terms of trip length and season. This survey was taken of residents with registered bicycles in the Capital City area.

CHAINWHEEL TO REAR SPROCKET

		Number of teeth, Chainwheel (large front sprocket)																				
		24	26	28	30	32	34	36	38	40	42	44	45	46	47	48	49	50	52	53	54	55
12	54.0	58.5	63.0	67.5	72.0	76.5	81.0	85.5	90.0	94.5	99.0	101.2	103.5	105.7	108.0	110.2	112.3	117.0	119.3	121.5	122.7	126.0
13	49.8	54.0	58.1	62.3	66.4	70.6	74.7	78.9	83.1	87.2	91.4	93.4	95.6	97.6	99.7	101.8	103.9	108.0	110.0	112.1	114.2	116.3
14	46.2	50.1	54.0	57.8	61.7	65.5	69.5	73.3	77.1	81.0	84.9	86.7	88.7	90.6	92.6	94.5	96.4	100.3	102.2	104.1	106.0	108.0
15	43.2	46.8	50.4	54.0	57.6	61.1	64.8	68.4	72.0	75.6	79.2	81.0	82.8	84.6	86.4	88.2	90.0	93.6	95.4	97.2	99.0	100.3
16	40.5	43.7	47.2	50.6	54.0	57.2	60.9	64.1	67.5	70.9	74.3	76.0	77.6	79.3	81.0	82.7	84.4	87.4	89.4	91.1	92.6	94.5
17	38.1	41.2	44.4	47.6	50.8	54.0	57.2	60.3	63.5	66.7	69.9	71.5	72.1	74.6	76.2	77.8	79.4	82.6	84.1	85.7	87.3	88.9
18	36.0	39.0	42.0	45.0	48.0	51.0	54.0	57.0	60.0	63.0	66.0	67.5	69.0	70.5	72.0	73.5	75.0	78.0	79.5	81.0	82.5	84.0
19	34.1	36.8	39.7	42.6	45.5	48.2	51.1	54.0	56.8	59.7	62.5	64.0	65.4	66.8	68.2	69.6	71.1	73.9	75.3	76.7	78.1	78.5
20	32.4	36.1	37.8	40.5	43.2	45.9	48.7	51.3	54.0	56.7	59.4	60.8	62.1	63.4	64.8	66.2	67.5	70.2	71.5	72.3	74.5	75.5
21	30.8	33.4	36.0	38.6	41.1	43.7	46.4	48.9	51.4	54.0	56.6	57.9	59.1	60.4	61.7	63.0	64.3	66.8	68.1	69.4	70.7	72.0
22	29.4	31.9	34.3	36.8	39.2	41.6	44.2	46.6	49.1	51.5	54.0	55.2	56.5	57.6	58.9	60.1	61.4	63.8	65.0	66.2	67.5	68.7
23	28.1	30.5	32.8	35.2	37.5	39.9	42.4	44.6	47.0	49.3	51.6	52.8	54.0	55.2	56.3	57.5	58.7	61.0	62.2	63.6	64.5	65.7
24	27.0	29.2	31.5	33.7	36.0	38.2	40.5	42.8	45.0	47.3	49.5	50.7	51.8	52.9	54.0	55.1	56.3	58.6	59.6	60.7	61.8	63.0
25	25.8	28.0	30.2	32.4	34.6	36.7	38.9	41.0	43.2	45.4	47.5	48.6	49.7	50.8	51.8	52.9	54.0	56.2	57.2	58.3	59.4	60.4
26	24.9	27.0	29.0	31.2	33.2	35.3	37.4	39.5	41.5	43.6	45.7	46.7	47.8	48.8	49.9	50.9	51.9	54.0	55.0	56.0	57.1	58.1
27	24.0	26.0	28.0	30.0	32.0	34.0	36.0	38.0	40.0	42.0	44.0	45.0	46.0	47.0	48.0	49.0	50.0	52.0	53.0	54.0	55.0	56.0
28	23.1	25.0	27.0	28.9	30.8	32.8	34.8	36.6	38.6	40.5	42.4	43.4	44.4	45.3	46.3	47.2	48.2	50.1	51.1	52.0	53.0	54.0
29	22.4	24.2	26.1	28.0	29.8	31.6	33.6	35.4	37.2	39.0	41.0	41.9	42.0	43.8	44.7	45.6	46.5	48.4	49.4	50.3	51.2	52.1
30	21.6	23.4	25.2	27.0	28.8	30.6	32.4	34.2	36.0	37.8	39.6	40.5	41.4	42.3	43.2	44.1	45.0	46.8	47.7	48.6	49.5	50.4
31	20.9	22.6	24.4	26.2	27.9	29.6	31.4	33.1	34.8	36.6	38.3	39.2	40.1	41.0	41.8	42.6	43.5	45.2	46.2	47.0	47.9	48.8
32	20.3	22.0	23.6	25.3	27.0	28.7	30.4	32.1	33.7	35.4	37.2	38.0	38.8	39.7	40.5	41.4	42.2	43.9	44.7	45.5	46.4	47.3
33	19.6	21.3	22.9	24.6	26.2	27.8	29.6	31.1	32.7	34.4	36.0	36.8	37.6	38.5	39.3	40.1	40.9	42.6	43.4	44.2	45.0	45.9
34	19.1	20.6	22.2	23.8	25.4	27.0	28.6	30.2	31.8	33.3	35.0	35.7	36.5	37.4	38.1	38.9	39.7	41.3	42.1	42.9	43.6	44.5

You will want a high gear for speed and low gear for climbing hills or for easy cycling on windy days. A high gear is in the 85 to 105 range. A low gear is in the 35 to 45 range.

On a 10-speed you have other criteria. The gears should have: 1) a good range of speed from high to low, 2) no duplication or excessive closeness of speeds, 3) an easily remembered shifting pattern, and 4) no unusual gaps between gears.

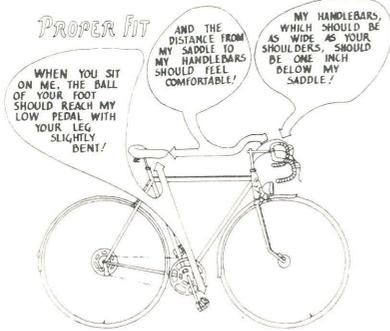
If you wish to adapt your bicycle for commuting purposes, change the sprockets to obtain the best gearing possible for ease in cycling under conditions in your environment.

On a derailleur bicycle your speed choices should be organized on a chart and taped to your handlebars.

		Front Sprockets (teeth)	
		42	52
Rear Sprocket (teeth)	14	81	100
	15	76	93
	21	54	67
	23	49	61
	34	33	41

When shifting on a bicycle with a derailleur, keep spinning while shifting levers but reduce your pedal pressure, letting the momentum of the bike carry it along. Shift, of course, when you have momentum - not when crawling uphill. Shifting a

bicycle having a three-speed hub is a matter of changing the shift trigger to change gears while not pedaling or even when back pedaling (e.g., standing at a light).

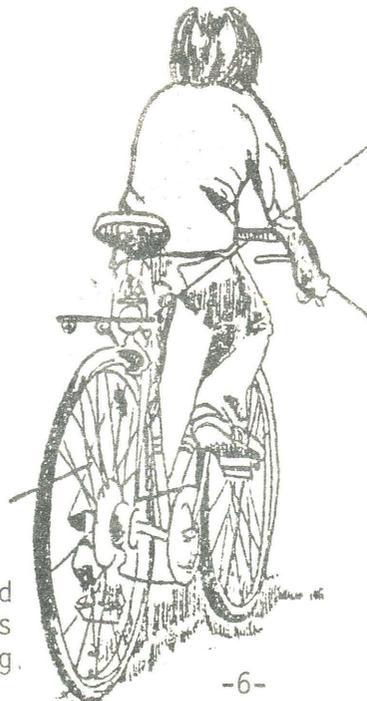


SIZE AND FIT

The fit of the bicycle is crucial to the comfort of the commuting cyclist. The bicycle with a diamond frame (top tube) should be fitted by the cyclist standing over the top tube. There should be at least a one-inch

clearance between the top tube and the rider's crotch.

When seated on the saddle with the heel of the foot on the pedal (no heel on shoe), the knee should be straight. With the rider on the saddle and the ball of the foot on the pedal, the knee would be slightly bent.



When standing over bicycle, crotch must clear top tube one inch.

You should be able to reach the brakes when seated on the saddle.

Leg must not be straight when pedaling—causes hips to move back and forth—only legs should be moving.

When cycling, the hips should not move. One should ride the bicycle to determine proper fit.

When seated on the saddle and leaning over the handlebars, the nose of the rider should be over the stem. Another measure of fit is the distance between the saddle and handlebars. With the elbow at the nose of the saddle, the fingertips should just be brushing the handlebars. The handlebars should be as wide as the shoulders. The brakes should be positioned within comfortable reach of the hands. The nose of the saddle should be positioned behind the crank axle.

EQUIPMENT

The equipment you choose should be for comfort and safety. Equipment you should consider includes carriers, clothing, safety items, and tools.



Carriers. You will need to determine what you will be carrying and then buy carriers, backpacks, and/or baskets to accommodate those needs. Your needs might possibly include carrying a child to a day-care center before going to work.

Front baskets are unstable and should be avoided. The weight that is carried on a bicycle should be below the center of gravity as much as possible.

Backpacks should be used only for lightweight objects. There are kits available for making your own pannier bags.

Carrying children requires special equipment for the bicycle. Rear child seat carriers are most frequently seen. When a child is above 40 pounds, you should encourage the child to accompany you on his/her own bicycle, or you can pull a semi-trailer (bugger).

Carrying objects necessitates having shock cords for assuring that there are no loose items. Baskets are particularly prone to items bouncing out. Secure objects so they can't bounce out of baskets.

Clothing. You need to be prepared for rain and to carry rain gear with you for return trips. Rain capes can be easily designed and sewn as a family project. Do not use camping rain gear, such as ponchos, due to wind resistance and the likelihood of getting the poncho caught in the spokes. Rain gear for cycling is designed to follow the lines of the body, offer the least wind resistance, and not interfere with vision while not causing the rider to swelter from the heat generated by mild exertion.

If it is cold, you may want to be prepared with mittens. Braking with stiff, cold hands can be very difficult. Generally, cold hands are in the cyclists' pockets and, therefore, not in the best position for braking. Cyclists should consider wearing cycling gloves (gloves with the fingertips cut off) or padded hand-ball gloves to cushion the pressure of the palm against the handlebars (a major nerve is located in the palm) and protect the hands from abrasions in falls. Plan on making your own pant straps. (See instructions on page 26.)



Safety Equipment. Head injuries are the greatest danger to the cyclist. Ninety-nine percent of the accidents will be falls or cyclists running into cyclists, pedestrians, dogs, or permanent objects. A helmet is worth the investment.

The criteria for choosing a helmet should be on: 1) wearability (not hot and heavy), 2) security in terms of staying in place while riding, 3) effectiveness against scalp abrasion and penetration-type injuries, 4) ability to absorb impact by gradual deceleration of head, and 5) must not create additional hazards by its nature.

Mirrors are an important piece of safety equipment. A mirror attached to a helmet or glasses is the safest. Use a mirror as you would use mirrors while driving a car. A mirror tells you if there is a vehicle overtaking you. A mirror tells you if there is nothing in view. This means that before you change speed or direction, you do a shoulder check. Do not rely on a mirror as the sole source of information. Like the motorist, the cyclist has blind spots.

QUICK CHECK

Stand over front wheel and twist HANDLEBARS.

Twist SADDLE for looseness.

Lift bicycle and spin FRONT WHEEL.

Wheel should move freely with nothing rubbing.

Lift REAR WHEEL and spin. Wheel should move freely.

Test for tire pressure. You should not be able to press tire with thumb.

CHECK PEDDLE AND CRANKS. Neither should be loose.

Press BRAKE while walking the bicycle.

FRONT BRAKE should cause bicycle to tip.



REAR BRAKE should cause wheel to drag.

Gently drop bicycle to check for any loose items.

POSTURE AND PEDALING TECHNIQUE

Mounting and dismounting are the most unstable moments for a cyclist.

Proper Mounting

--Begin with pedal at the highest point, slightly past the highest point forward.

--Mounting involves a three-step process: Place one foot on the pedal at the highest point, place the other foot on the pedal, and, finally, seat yourself.

--One spins the pedals in a circular motion. A constant cadence of 60 to 70 rpm should be maintained.

Most falls occur during the time the bicyclist is starting and stopping the bicycle.

--Have the foot always in the mounting position when beginning to bicycle or stopping momentarily.

--Ease in starting and stopping is helped by having a properly fitted bicycle.



STEERING AND HANDLING

A bicycle is steered by leaning. One does not turn the handlebars to turn the bicycle but leans to turn.

To illustrate this point, take a wheel off and, while spinning it, you will find that only by leaning the wheel can you turn



the wheel.

Leaning is the basic principle for weaving on a bicycle. When one "waltzes" to and fro gently, this should be done simply by leaning from side to side. A bicycle that leans easily on one side and does not lean easily on the other side may have a damaged frame.

EMERGENCY MANEUVERS

Panic Stop

--Demonstrate by standing next to the bicycle that the front brake tips the bicycle forward and that the rear brake causes the rear wheel to drag. This establishes that there is much greater braking force with the front brake. In actual terms there is three times greater braking power with the front brake than with the rear brake.

--Remember the principle of this technique is to stop quickly. The REAR BRAKE WILL NOT STOP YOU QUICKLY. Unfortunately, most people feel that one should not brake with the front brake to avoid tipping over. However, you should really be utilizing the power of the front brake with the rear brake to stop quickly and effectively. How one avoids the danger of tipping over is to listen for the skidding of the rear wheel. If the rear wheel begins to skid, let up on the front brake immediately. A sliding rear wheel suggests that you are losing traction. Another way to gain more traction on the rear wheel is to shift your body weight to the rear wheel. So, when making a panic stop, shift your seat back on the saddle when braking.

Rock Dodge

--Demonstrate with hand on the saddle that until you lean the bicycle, the wheel does not turn. It is the lean that turns the handlebars. Prepare the youngsters for the rock dodge by practicing weaving (leaning) as means of steering. If there is any difficulty weaving from

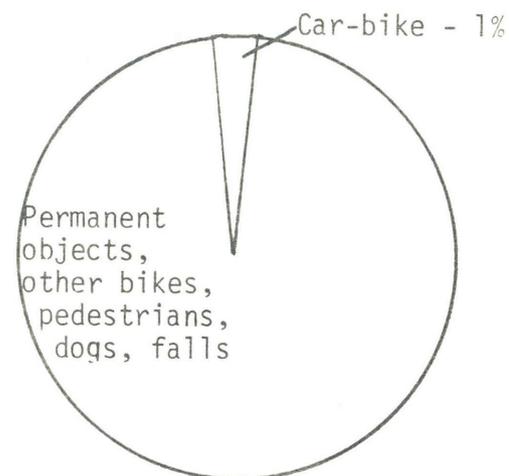
one side to the other, check to see if bicycle frame is bent. If the rider finds weaving difficult, be certain that the person is leaning the body to weave rather than turning the handlebars. The weight of the body shifting, not the handlebars, should cause one to turn.

The rock dodge allows one to miss a road hazard (rock or pothole) without weaving. To execute a rock dodge, bring the front wheel up to the hazard. The wheel moves sharply left or right and to correct for the sudden lean, the wheel moves further in the opposite direction when past the hazard. The body travels over the hazard and the front wheel around. The rear wheel can hit the object being dodged without much problem.

Instant Turn

--An instant turn is a continuation of the rock dodge. Begin a dodge and, instead of continuing straight, make a 90-degree turn left or right. Remember, it is the front wheel that is moved sharply to the right or left and then to the opposite direction to correct the sharp lean. This movement will feel unnatural because the instant turn requires you to move the front wheel toward the obstacle you are avoiding (bicycle, car, pedestrian) before going into the lean. Remember, the purpose of this maneuver is to cut down the radius of the curve in the turn making a tighter turn. You will not want to attempt this maneuver in sand, gravel, or under slippery conditions.

TRAFFIC PRINCIPLES AND LAW



Accident Research

- Over 99 percent of bicycle accidents are the result of falls or involve permanent objects, other bikes, pedestrians, or dogs.
- The wrong-way cyclist causes 30 percent of the accidents and is the major category type for accidents.

The Reasons Why:

- The cyclist is not in the traditionally expected place in the flow of traffic. The closing distance is much quicker between the wrong-way cyclist than with a motor vehicle.
- The wrong-way cyclist is involved in head-on collisions which are far more serious in terms of personal injury.

The Bicycle as a Vehicle

- The national Uniform Vehicle Code defines the bicycle as a vehicle. Bicyclists have all the rights and responsibilities of drivers of other vehicles.

First Principle: Drivers and Pedestrians
Traffic law has two sets of rules for two groups of people--drivers and pedestrians. The cyclist

can follow the traffic laws of the roadway and the pedestrian laws on the sidewalk or in the crosswalk.



Second Principle:

Conflict or Cooperation - Neither the cyclist nor the motorist has been

trained in mixed traffic flow, although both should observe the skills of driver ed training which involve keeping the big picture, leaving a way out, and communicating with other drivers. Let the drivers of other vehicles know that you are aware that they are present. Wave drivers past you if they are asking to pass. Smile or nod your head and try to obtain some response from the other drivers at intersections. In every way possible, give verbal and nonverbal clues to the other vehicle drivers that you are aware of their presence and are willing to cooperate.

Third Principle: First-Come, First-Served

If you are traveling on a portion of the roadway, nobody else may intrude in front of you so close as to constitute a hazard. To make it fair, you must not intrude on anybody else's right-of-way space either. The distance defined as "so close as to constitute a hazard" is a judgment measurement that depends on speed, visibility, and highway and traffic conditions.

Superior and Inferior Roadways

--Commuters may travel on either superior or inferior roadways. Generally, this means that other drivers will be yielding to you as you ride. However, never assume that a driver is going to see you. Always try to obtain some kind of verbal or nonverbal response from other drivers to be assured that you have been seen. Whenever changing speed or direction, be certain to ascertain that the space around you is clear.

Channelization

--Channelization is a principle of both traffic law and highway engineering. It means that whenever a driver intends to turn, he/she must prepare for the turn by first going to the side of the highway appropriate for the turn: turn to the right side for a right turn and to the center for a left turn.

ROAD HAZARDS

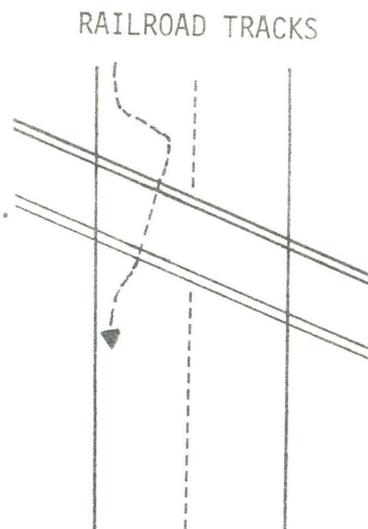
Sun glare, hill crest, blind curves:

- When riding toward a low sun, you are concealed in sun glare, so ride as far to the right as you can whenever you hear a car behind you. Do not turn left for chuckholes.
- When riding over the crest of a hill, you are concealed for the first part of the descent, so don't move away from the edge of the road as your speed increases until you are far enough down from the crest for drivers to see you and avoid you.
- On right curves with the vertical wall on the right, you cannot be seen from very far behind. If the traffic lane is narrow, move to the left side to increase the distance from behind from which you can be seen--in these places the speed limit is usually lower because they are dangerous places for all drivers.
- If the lane is wide, stay far to the right to give drivers the most room to overtake you. Of course, this is why you use your rear reflector at night--headlamps often won't disclose a non-reflectorized cyclist at night until the driver is too close to overtake properly.

Curbs, chuckholes, and railroad tracks:

- Hitting any sharp edge can fold your wheel and/or dump you. The front wheel is more sensitive than the rear, and the sharp edge on the far side of the chuckhole is the side that will dump you.

- Dodge a sharp edge.
- Never climb curbs.
- As you approach a sharp edge, stop pedaling with your pedals horizontal and lift yourself off the saddle. Relax your arms and legs so that your bike rides over the bump without having to lift your body weight also.
- If you haven't seen the edge until too late to dodge it or slow down, perform this rising motion with a sharp jerk: lift your bike off the ground by the handlebars, and rise off the saddle to jump over the edge. Get the front wheel over at all costs and hope for the back wheel to get over.



Slots, ridges, and diagonal railroad tracks:

- The first action is prevention. Steer to cross the slot or ridge at right angles which will convert them into edges.
- If you can't cross it at a right angle but see it early enough, jump the front wheel over it.
- Slots and ridges are found in many places: the drain grate, drain slots, or between road surface and gutter, railroad tracks, grooves between sections of concrete highways, or off the shoulder where you are planning to get back on the roadway.

Slippery places:

- Examples are oil, gravel, ice, water, wet tracks, mud, and such things.
- Usually the techniques to handle these problem areas are best adapted to those nine and older or those who are experienced. For most youngsters this age, reducing speed and utilizing preventive measures is the best tactic.

--A series of turns is the technique used by a skilled cyclist under slippery conditions.

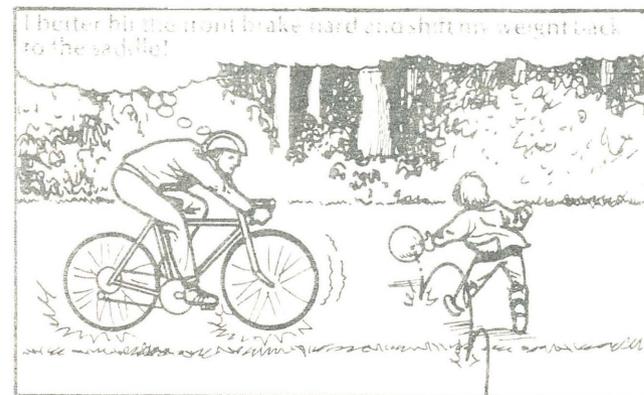
--When wet any metal object or painted surface is extremely slippery. Make certain to change cycling habits when it rains.

Pillars, Posts, and Barricades:

- These are severe problems for bicyclists.
- It is best to stay away from them and ride on the roadway.

Moving Obstructions--Dogs, Balls, Children:

- The danger from these is being thrown.
- The first rule is to steer your front wheel clear of the moving object, no matter what.
- In reference to dogs, it is best to keep cycling under control until it is clear that you can get out of the way. If it is not possible to leave the dog, stop the bicycle and walk the bicycle between you and the dog.

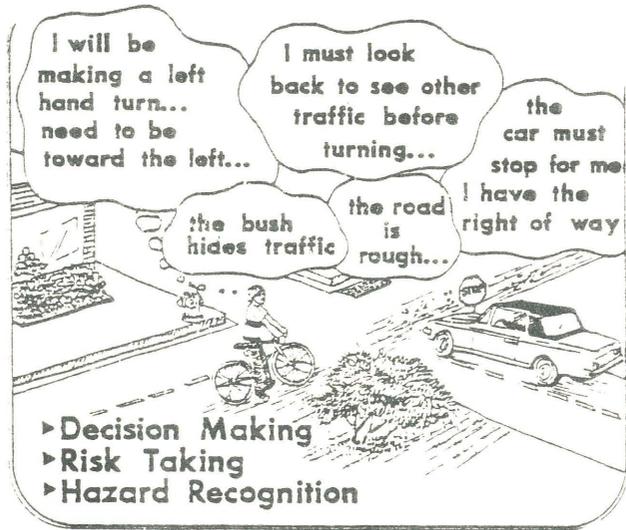


OPERATIONS ON THE ROAD

Communicate. When a cyclist changes speed or direction, it is important that verbal and/or nonverbal communication be given. The cyclist may give hand signals, but that is not enough. The cyclist must communicate his/her intentions to other drivers.

Lane changes. In changing speed or direction, the cyclist should look behind and communicate to the drivers around him/her. When changing lanes, this would specifically be to look behind, make two moves per lane change (one for the line, one for the lane), and to ride smoothly without wobbling.

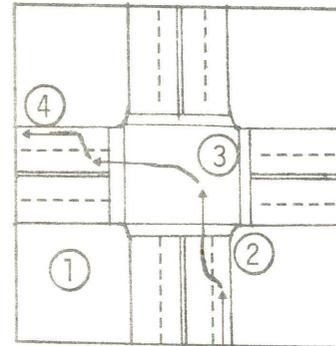
Left-hand turns. Making left-hand turns involves more decision making. One's experience, the hazards in the environment, and the density of traffic should be considered for determining the type of left-hand turn that should be made. Signals and communication should be given before entering into the turn.



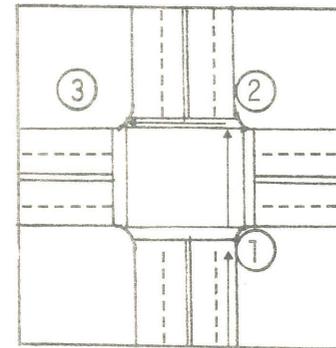
Lane position. The law states that one should ride as far right as is practicable. This is interpreted to mean "safe" and "reasonable." The cyclist should allow at least two feet of room. This space allows the cyclist to "dodge" obstacles and to be far enough away from the edge (drop-off or curb) where a pedal may be hit.

If a lane is 16 feet or wider, there is ample room for the motorist and the bicyclist to share it. If the lane is 12- or 13-feet wide, the cyclist in the

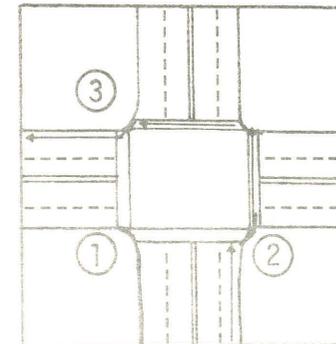
two feet of space will result in the motorist moving out to pass the cyclist. In very narrow conditions, particularly around blind corners, the cyclist should be in the middle of the road to give the motorist the sighting distance and the signal to move entirely into the next lane. This will keep the cyclist from being caught in a squeeze if an oncoming car should approach.



- 1 - Look back, signal, move into the left lane when it looks safe.
- 2 - Stay on the right side of the left lane.
- 3 - Watch out for cars.
- 4 - Drive on the right side.



- 1 - Drive your bike to the corner and across the street.
- 2 - Dismount and walk your bike.
- 3 - Or choose to ride.



- 1 - Drive your bike to the corner. Get off and walk it up the curb.
- 2 - Walk your bike across the street when it is safe to do so.
- 3 - Get back on your bike and drive on.

The type of turn that you should execute will depend on traffic conditions, sight lines, and your skill.

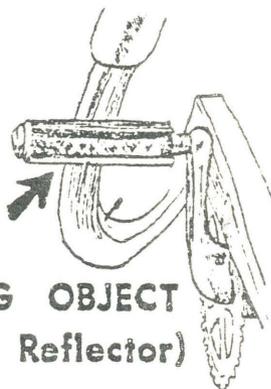
SPECIAL RIDING CONDITIONS

Riding at night:

--It is strongly recommended that you have a leg light with you when commuting or taking extended rides. The leg light is always needed at night and should be used in emergency situations (such as dense fog or poor visibility) which require that you have some lighting. You should also always have some form of fluorescent or reflectorized equipment, such as a fanny bumper or a flag, at all times. Again, if you can include light-colored clothing, particularly yellow, you will have a much better chance of being seen.

Riding in the cold:

--It can be chilly whenever you ride in the early morning hours, and stiff hands are not the most flexible for quick braking. If you will be riding when it is chilly, always take a pair of woolen mittens with you.



**MOVING OBJECT
(Peddle Reflector)**

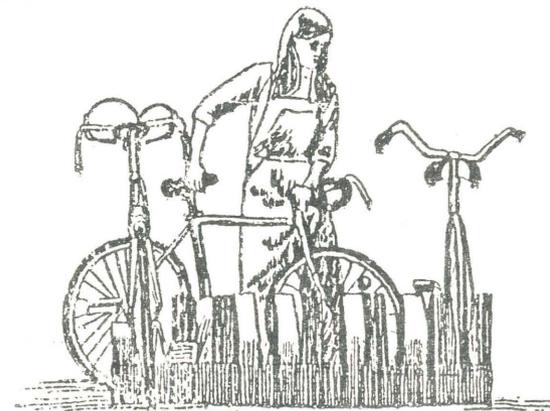
Riding in the rain:

--Mud guards. Plastic mud guards are light and protect you from muddy grit.
--Rain clothing. Cycling rain clothing must keep the rain off you and let your own sweat evaporate. The proper wet-weather clothing is the cyclist's cape, hat, and spats. The cape covers the cyclist completely from the fingers in front throughout in a tent-line shape. The cape has a tight-fitting collar to keep the rain from running in, a well-covered zipper at the neck so that it can be put on without having a leak, a kind of belt on the side to hold it down

when the wind tries to blow it over the cyclist's head, some loops to hold the front corners down, and a large but well-covered vent across the shoulders to let the air in. It is made of bright yellow fabric so the cyclist can be seen in the rain.

SECURITY

Plan to have your bicycle registered and licensed. Study the local enforcement system on the efficiency and effectiveness of the registration system. Is your license number/serial number easily retrievable? For example, by computer? Is there follow-up to stolen bicycle reports? A bicycle is easier to recover if stolen and medical treatment is more readily available if you have a bicycle registered.

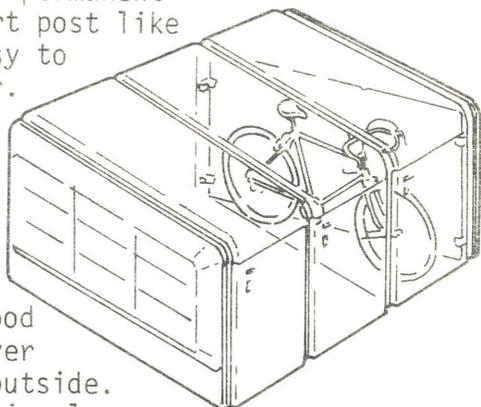


Locks only delay a possible thief from stealing your bicycle. Do not plan to leave your bicycle unchaperoned for periods of time. Also, be well aware that other valuables on your bicycle can be readily removed such as pannier bags, pumps, or other gear that you leave hanging from a bicycle.

To secure your bicycle properly:

- Always lock your bicycle.
- Buy the better locks.
- Lock the bicycle through the frame and both wheels.

- Lock the bicycle to a permanent object, not to a short post like a meter, which is easy to lift the bicycle over.
- Never leave anything valuable on your bicycle.
- Study the advantages of different types of locks.
- If you have a very good bicycle, consider never leaving the bicycle outside. Installing enclosed bicycle lockers or utilizing a storage place at your place of employment is recommended.



ROUTE ANALYSIS AND SELECTION

As a commuter, you will want to arrive at your destination as effectively and efficiently as possible. Because the bicycle is most unstable when starting and stopping, the commuter riding regularly will want to avoid starting and stopping as much as possible.

Riding on a street which gives you the right-of-way will be the first step in avoiding starting and stopping. As an efficient cyclist, you will want to maintain a regular rhythm or spinning with the pedals.

Avoid riding on sidewalks or on other off-road facilities which create more intersections (more conflict problems at intersections). Most off-road facilities are poorly designed, causing bone shock in commuters. This is a condition caused by the constant jarring of the cyclist from rough and frequent breaks in the surface of the path. Conditions such as rough surface, frequent expansion grooves, slopes on curves incorrectly designed or a lack of slope when needed and ridges at entry and exit locations, are among those that

create additional stress on the cyclist.

The decision to commute by bicycle provides different opportunities for the cyclist. Those who live close to their destinations may desire to identify a longer route for exercise and have the more direct route as an option when time is important. Others who commute five miles or more may prefer a direct route.

Consult experienced cyclists in your area if time does not permit you to select a route. Cycle with others to develop skills in cycle commuting.

One route, as mentioned before, may not be enough. Besides additional exercise and time considerations, commuter cyclists may want to reduce hazards on a route. In wet weather, for example, railroad tracks are very slippery. A route which eliminates train crossings in rain is an accident-prevention measure. Remember, falls account for 99 percent of the accidents and are an area of major concern to the commuter cyclist.

Selecting a Route. Careful analyzing of the characteristics of a route shows that the commuter cyclist is aware of the needs and hazards in a cycling environment. Ride under different conditions of visibility and weather to judge the long-term advantages of a route.

Off-road facilities are not usually built to accommodate the commuter's needs. Generally, time considerations and the poor design quality of off-road facilities expose the cyclist to conditions not conducive to effective and efficient cycling.

On-road cycling requires knowledge and application of driver education skills. The operation of a bicycle necessitates that the cyclist act as though he/she is driving a vehicle. Review the section on clues of a predictable cyclist (page 25).

Selecting a Route. In scouting a route, one should identify the different conditions under which one will ride. For example, a person who is very alert in the morning may prefer a route which is more direct, involving medium to heavy traffic. This same person may need a more relaxing, lengthy route coming home to allow more time to unwind from the activity of a busy day.

Recognize the hazards which are likely to be permanent. Frequent driveways increase the number of intersections, and accidents are more likely at intersections. A depressed section of town generally has a greater amount of debris, particularly glass, in the streets.

Conditions which are hazardous but could possibly be improved should be reported to the local highway engineer. Overgrown shrubbery which contributes to poor sight lines or blind corners should be noted. A road surface which is extremely rough could be resurfaced. Grates which have wide slots capable of catching a wheel could be replaced. Intersections which are poorly marked could be improved. Traffic lights which are not sensitive to cyclists could have the loop changed. These areas could be easily dealt with if the commuter cyclist expressed concern to officials who could correct them.

You may want to increase awareness of the need for improving roadways for cyclists by asking that the lanes be restriped to allow greater width, or you could ask the commuter club to complete the more ambitious projects. For example, your local 4-H office provides a telephone hotline in some counties. A hotline could be a source of information for commuters. Reports on hazards could be given on the hotline. Commuters could be a valuable source for reporting accidents of bicyclists which are not legally or routinely reported. Training new riders to reduce the amount of experience needed to begin commuting could be a service offered by a commuting club.

CLUES FOR THE IDENTIFICATION OF A PREDICTABLE CYCLIST

As motorists, you should share this list with other drivers. These are clues to help the motorists identify a cyclist who is more predictable than most cyclists.

- *Cyclist is wearing a helmet.
- *Cyclist indicates hand signals along with negotiating communication with other drivers.
- *Cyclist is carrying extra things in proper baskets, pannier bags, etc.
- *Cyclist is wearing clothes that are highly visible.
- *Cyclist has adequate lighting for night riding.
- *Cyclist is wearing pant clips, and there are no loose pieces of clothing.
- *Cyclist is wearing rain gear.
- *Cyclist is very clear in making lane changes.
- *Cyclist knows how to handle parked cars.
- *Cyclist is observing hazards in the environment.
- *Cyclist keeps both hands on the handlebars except when signaling.
- *Cyclist has toe clips and uses them.
- *Cyclist stops at lights.
- *Cyclist travels with the flow of traffic.
- *Cyclist does safety check before taking off.
- *Cyclist does not put foot down at stop sign.
- *Cyclist has reflectors on pedals.
- *Cyclist has an adequate seat on the bike.
- *Cyclist's bike looks in good condition; brakes and spokes are in place.
- *Cyclist's bicycle fits properly.
- *Cyclist rides where the cyclist should ride, determined by conditions.
- *Cyclist properly secures bicycle.

BICYCLE PANT STRAP

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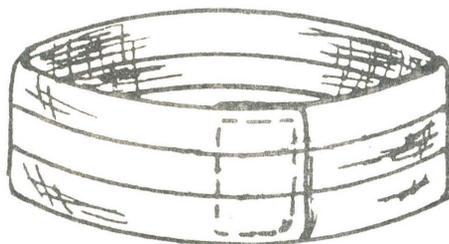
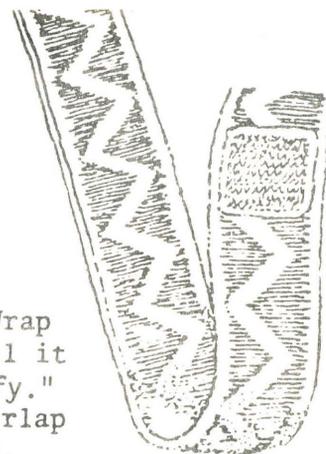
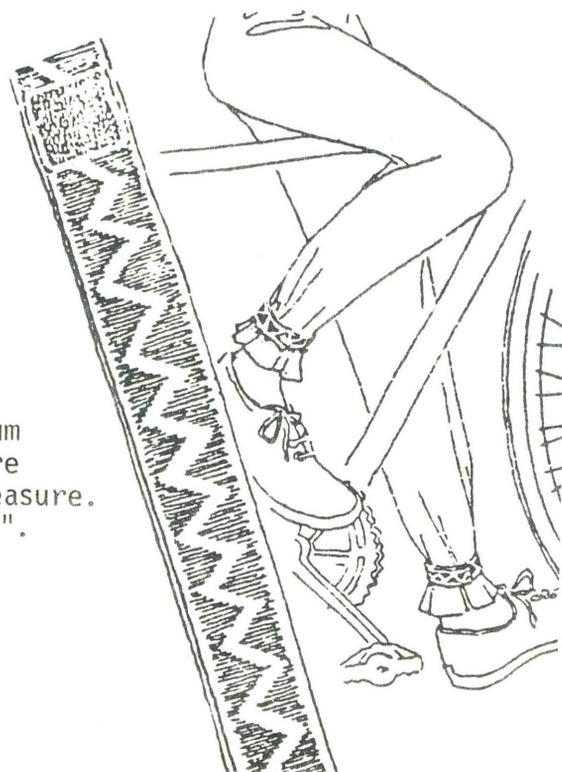
Materials Needed:

Heavy elasticized band or trim (minimum width $\frac{7}{8}$ "): to determine yardage, measure around ankle, over pant leg with tape measure. Multiply this measurement by 2 and add 2".

Velcro fasteners, thread

Instructions:

1. Cut trim into 2 equal lengths.
2. Stitch fasteners at each end so that, when closed, strap ends overlap 1".



OR

Use elastic banding. Wrap elastic around leg until it fits snugly but is "comfy." Then cut 2" longer; overlap 1", and stitch as shown.

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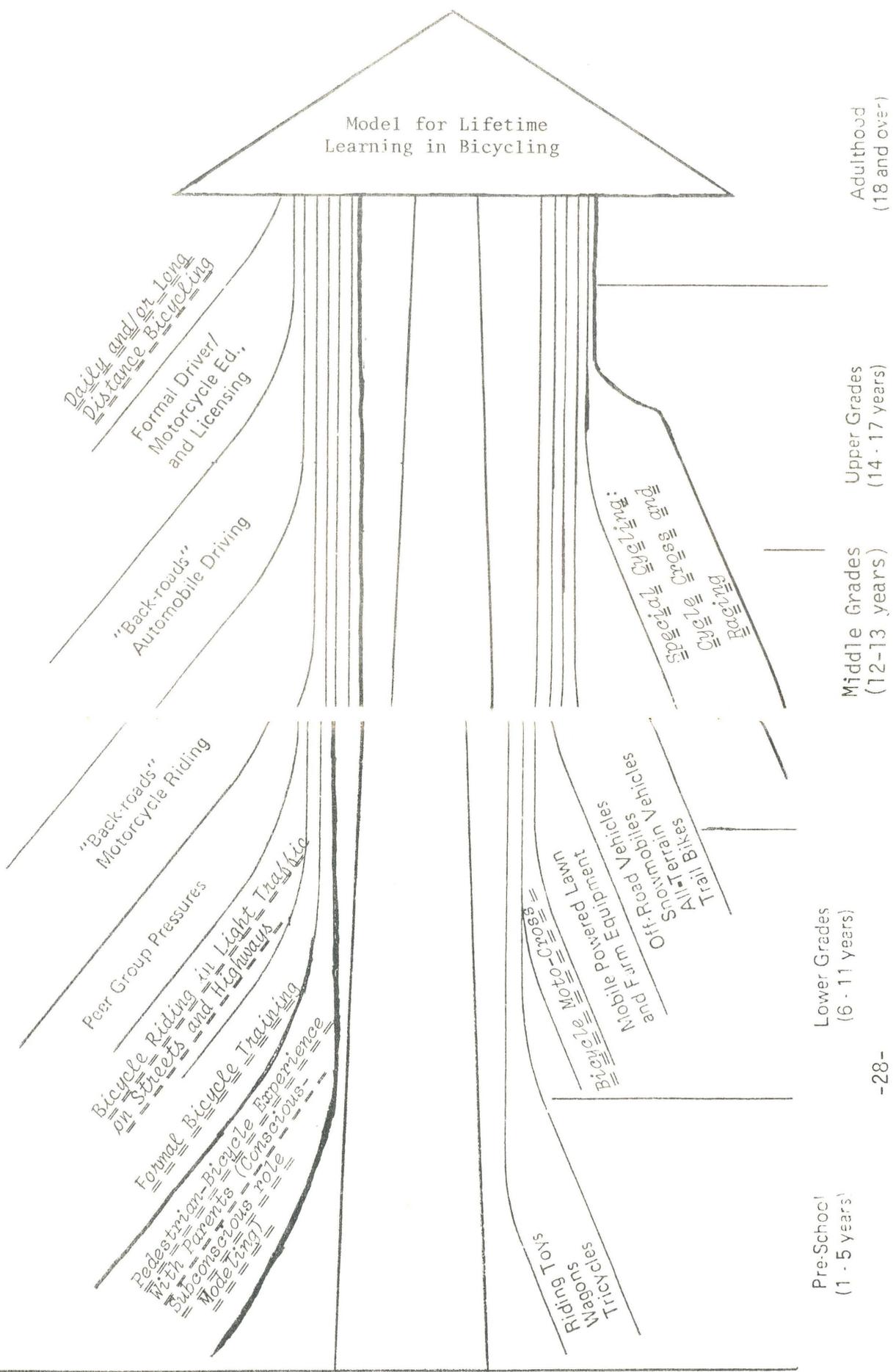
Personal Appearance
Department of Human Environment and Design

Adapted from Quick and Easy Projects, Velcro Corporation and the Butterick Fashion/Sewing Update Program.

Model for Lifetime Learning in Bicycling

Learning Involvement With Traffic Mix

Learning Away From Traffic



Pre-School
(1 - 5 years)

Lower Grades
(6 - 11 years)

Middle Grades
(12-13 years)

Upper Grades
(14 - 17 years)

Adulthood
(18 and over)

TIRE REPAIR

Remove tire to fix flat. Cyclists not having quick release hubs will need to use wrenches for axle nuts. Remember, "righty tighty and lefty loosee." On three-speed bicycles, the indicator spindle must be unscrewed.

--Remove tire, using teaspoon tire irons. Avoid any sharp-edged objects, such as a screwdriver, in removing the tire. Begin at the valve stem. Check for a hole or cut in the tube. If a hole or cut is found, mark it with chalk. Then check the tire for glass, rough spokeheads, or pieces of steel that caused the flat. Remove that object.

--Do not fix tube on the road. Instead, replace it with a spare tube. Pump up a little after inserting valve first (just the opposite of removal). Deflate slowly watching to be certain tube is not pinched.

--Inflate to tire pressure indicated on the sidewall. Your thumb pressing on the tire should not be able to indent the tire.

Can you identify the clues to an experienced cyclist?

(fill in the blank)

- Pant strap
- Secure bicycle
- Gloves
- Toe clips
- Proper mounting
- Helmet
- Proper lane position

