

Now inspect the rear of the vehicle.

- Move the light switch to the parking light position. Tail lights and the rear license plate light should be lighted.
- Move the light switch for the headlights to the "on" position. Again, all rear lights should be lighted.
- Have an adult push the brake pedal. All brake lights should be lighted for as long as the brake pedal is pushed. The ignition switch may again have to be turned on, and this should be done only with adult supervision.
- Now ask the adult to press the brake, start the car, and put the gearshift lever into reverse. Stand safely clear of the rear of the vehicle while you check that both backup lights are working.
- Be sure all switches and controls are returned to the proper "off" positions after your check.

#### Windshields and Windows

Both sides of the windshield and windows should be kept clear and clean at all times. If the glass is cracked or broken, the window or windshield should be replaced. Be sure stickers or lazily tinted windows do not block the driver's vision. In most states, all required stickers should be in the lower right-hand or left-hand corner of the windshield. Under adult supervision, use the following procedure to check that windshield wipers are operating properly:

1. Wet the windshield with plenty of water so that dry, hard dirt will not scratch it.
2. Put the vehicle in park and engage the parking brake. Turn on the vehicle's ignition and switch on the windshield wipers. If the wipers operate at variable speeds, check each speed. Each wiper arm and blade should sweep across the windshield with a smooth, even motion without hitting the other blade or any part of the frame. Turn the wipers off.
3. Check the rubber wiper blades. They will need to be replaced from time to time, because summer heat and winter ice damage them. Many drivers give little thought to the blades until they need to use them. Check the blades with a simple "smear-and-clear" test. Mix soap powder or

liquid soap with a small amount of water and whip the suds until they are thick and heavy. Smear or spray the solution onto the windshield and turn on the wipers. If the rubber blades do not clear the glass completely in about three wipes, they should be replaced. Try the same test with the new wiper blades and notice how quickly they clean the glass.

The windshield washer is also necessary for good vision in bad weather or when your windshield becomes dirty. Every time you open the hood for an oil check, check the fluid in the washer container. In cold winter months, be sure to use winterized washer fluid, which has additives to prevent it from freezing.

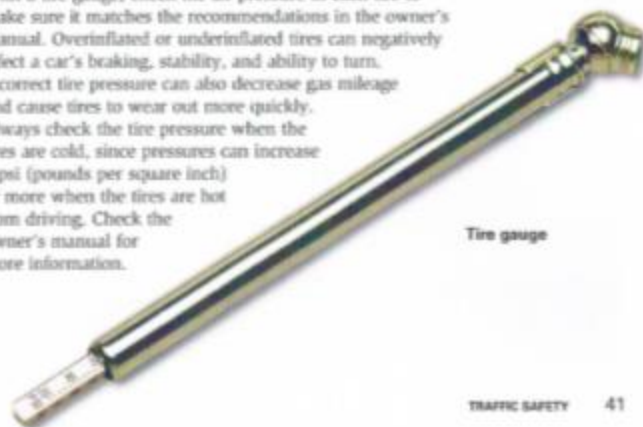
#### Tires

The condition of the tires dramatically affects a driver's ability to control his or her vehicle. The design, tread, and inflation of the tires and the condition of the road—wet, icy, or dry—are important factors. When tires do not hold to the road during acceleration or braking, a vehicle can go into an uncontrollable skid. It is important to check a vehicle's tires to determine conditions that may cause poor traction or skidding.

Follow this simple procedure to check your vehicle's tires, including the spare.

1. With a tire gauge, check the air pressure in each tire to make sure it matches the recommendations in the owner's manual. Overinflated or underinflated tires can negatively affect a car's braking, stability, and ability to turn. Incorrect tire pressure can also decrease gas mileage and cause tires to wear out more quickly. Always check the tire pressure when the tires are cold, since pressures can increase 6 psi (pounds per square inch) or more when the tires are hot from driving. Check the owner's manual for more information.

If your vehicle has a rear windshield wiper, use the same smear-and-clear procedure to find out if the rear wiper needs to be replaced.



Tire gauge



MAXIMUM COLD INFLATION AND LOAD

The tire pressure stamped on the sidewall of a tire is the maximum allowable pressure—not the recommended pressure. Always check the owner's manual to find out how much air to put in your tires.

2. Check the sidewalls and treads for cracks, cuts, bulges, blisters, and embedded nails, glass, or other foreign objects. (Do not rub your hand over the tire because you could cut yourself if something is embedded in the rubber.)

3. Check the tread carefully. Badly worn or bald tires can cause skidding, particularly when it is raining. A tire needs replacing when the tread is worn down to  $\frac{1}{16}$  of an inch. Some



tires have wear indicator bars built into the tread. When the tread is worn down to the solid bar of rubber across the width of the tread, it is time to replace the tire. A simple test to measure tread depth on a tire is to place a penny with Lincoln's head upside down and facing you into a tread groove. If the top of Lincoln's head is visible, then it is time to replace the tire.

When replacing tires on a vehicle, follow the vehicle manufacturer's recommendation for tire type and size. When your family buys new tires, be sure to get good-quality tires, and make sure all four tires match. New tires should be professionally balanced. Your tires will wear unevenly if your tires are not balanced and aligned properly. If the vehicle pulls to one side when it is driven on a straight, level road, the car is probably out of alignment. This will cause uneven wear to the tires, which can ultimately cause a blowout. A mechanic should check for this problem.

Never mix tire construction types—bias-ply, bias-belted, and radial—on the same vehicle or use the wrong size tires, because doing so can cause dangerous handling conditions.

## Motor Vehicle Inspection and Registration

The goal of state inspection and registration programs is to ensure that vehicles are properly equipped and maintained for safe use. They also help ensure that vehicles are driven safely by making sure the vehicle and the responsibility for driving the vehicle is registered to a specific person.

Depending on the state, inspections may be required once or twice a year. Some states make inspections at random by stopping cars on the road, and some require an inspection when a car is sold. Find out how often inspections are required in your state.

All states require that automotive vehicles be registered and licensed with the state. Keeping records of vehicles in this way helps make highways safer by giving officials ready information about who owns the vehicle and is responsible for its safe operation; reducing the chances of the theft of a vehicle; and aiding in inspections and recalls for repairs of manufacturing defects.

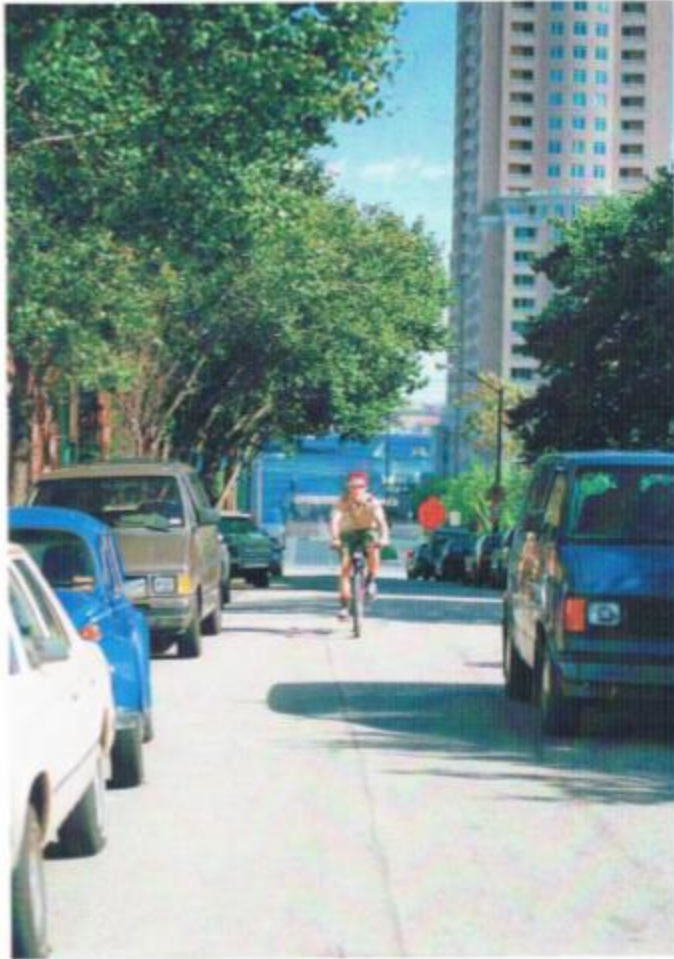


## Two Items You Must Carry With You When You Drive

In the United States, any time you drive a vehicle, you must carry the following items with you:

- A current driver's license from the state where you live
- Proof of insurance on your vehicle

Failure to comply carries steep penalties, including the loss of your driver's license. If you drive without insurance and you have an accident, you and your family will be personally responsible for all costs associated with replacing or repairing your vehicle, the vehicles you hit, and for all medical costs associated with injuries, which could amount to hundreds of thousands of dollars. You may also be subject to lawsuits by the injured parties and their insurance companies.



## Sharing the Road

As a Scout, you understand the importance of sharing and working together to make sure things go smoothly. Scouts always have backup plans in case of emergencies. The same should hold true for Scouts on the road. Safe driving means sharing the road with other drivers and being aware of those who are using the road with you. Sometimes it means putting your defensive driving skills to use by avoiding people who are driving recklessly or noticing a child on a side street and braking in time to avoid hitting the youngster as he or she darts out into the street after a ball. Safe driving also means sharing the road with everybody who uses it, including pedestrians, bicycles, motorcycles, trucks, buses, and stray or wild animals.

### Bicycle Safety

Riding a bike in traffic with bigger, faster, heavier four-wheeled vehicles is often dangerous and scary. The number of bicycles and vehicles sharing the road continues to grow every year and so, too, do accidents involving both.

In traffic, bicycles are considered vehicles and traffic laws that apply to cars also apply to bicyclists. Rules of the road to help ensure bicycle safety include the following:

- Always ride on the right side of the road, with traffic, just as cars travel. It's the law. Never ride against traffic. Drivers do not expect to meet a bicyclist when they round a corner or go over a hill.
- Obey traffic signals and signs. Be extra careful at crosswalks. Walk the bicycle across busy intersections. Watch for turning vehicles, and make eye contact with drivers to make sure they see you.
- Always check behind you when changing lanes, and use hand signals to indicate turns, lane changes, and stops.

More than  
25 percent of all  
bicyclists killed  
in traffic crashes  
every year are  
between the  
ages of 5 and  
15 years old.  
Many more are  
treated at hospital  
emergency  
rooms annually.

If bicycle lanes are provided, stay in the designated lane.

- Keep yourself a safe distance from cars and be prepared to stop. Keep your hands on or close to the brakes and allow yourself enough room to stop under the conditions in which you are riding. Ride at least 3 feet away from parked cars.
- Be predictable and ride in a straight line. Do not swerve or make sudden turns. Drivers may not be able to react fast enough to avoid colliding with you.
- Never carry a passenger on your handlebars.



Left-turn signal



Right-turn signal



Stop or slow-down signal

## Using Hand Signals

Bicycles do not have automatic turn signals as cars do. Nevertheless, you must signal when you plan to turn. Hand signals tell motorists what you intend to do. To make a left turn, look behind you, hold your left arm straight out and proceed carefully. For a right turn, hold your left arm out and up in an L shape. When you plan to slow down or come to a stop, hold your left arm down and away from your body, with the fingers pointing down and your palm facing the traffic behind you. Proper signaling is a matter of the law, courtesy, and self-protection.

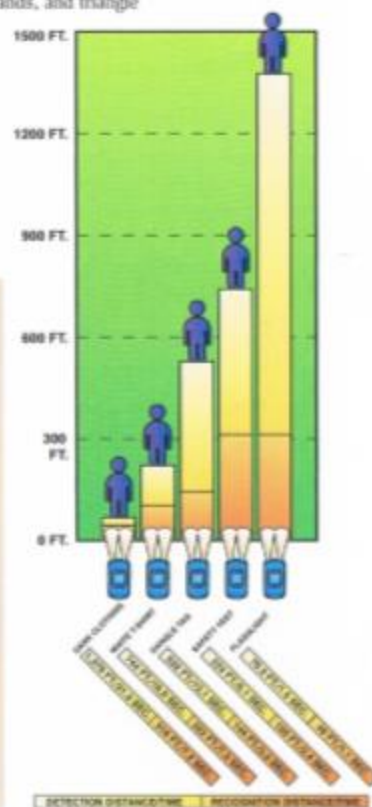
The Cycling merit badge pamphlet can provide more details on bicycling safety. See also the BSA Bike Safety Guidelines, found in the BSA's *Guide to Safe Scouting*.

## Be Highly Visible

Cyclists must make themselves highly visible on the road to motorists, pedestrians, and other cyclists. During the day, you should wear light-colored clothing. Even better are fluorescent-yellow and safety-orange clothing. Try not to ride at night, but if you must, wear special clothing made from reflective materials. Retroreflective vests, jackets, wristbands, and triangle patches are designed to bounce back motorists' headlight beams and will increase your visibility. Use at least one light source, such as a bright headlight supplemented by bicycle reflectors. A red taillight also is highly recommended. Many states have specific rules regarding lighting and nighttime bike riding. Find out what your state requirements are for nighttime bike riding.

## Inside the Black Box

To see the difference in nighttime visibility between a bicyclist or a pedestrian wearing reflective clothing and a rider or pedestrian without lights or reflective clothing, make a black box. Paint a box inside and outside with black paint. Inside, on the back of the box, place reflective material, fluorescent fabric, white fabric, yellow fabric, and black (or other dark-colored) fabric. Cut a small hole in the side of the box for a small flashlight to fit into. Make another hole in the front of the box and look through it. You will see the difference between the dark cloth and the brighter materials.





### Always Wear a Helmet

A bicycle helmet is a rider's most important piece of safety equipment. Helmets are designed to help prevent injuries to the skull and brain. They are highly effective—a bicycle helmet reduces the risk of serious head and brain injury by nearly 90 percent.

A bicycle helmet that has passed mandatory safety tests for how well it protects will have stickers inside the shell stating that, according to its manufacturer, it meets the specifications of the American National Standards Institute (ANSI) or the Snell Memorial Foundation, or both. You should use only helmets that carry one or both of these stickers. In order to protect your head if you have a fall or collision, the helmet must fit you correctly and securely, as shown in the diagram.

Most deaths from bike falls and collisions are from head injuries.



Too far back

Too far forward

Correctly positioned

### Steps to Take After an Accident

Accidents can be extremely scary experiences, so it is important to "be prepared" beforehand as to what steps you should take if you are ever involved in a car collision.

1. Stop your vehicle as soon as it is safely possible. If you cannot stop quickly, stop as soon as you can.
2. If there is only minor damage and you can safely do so, move the vehicle off the road. If it is too badly damaged to move, turn on the hazard lights to make your vehicle visible to other drivers behind you.
3. Turn off the ignition and check for gas leaks. If you see any fluid leaking from underneath the car, get away and stay clear of the immediate area. Make sure you and any passengers, or occupants of other vehicles involved, are out of the way of traffic.

4. Stay calm. Adrenaline may be pulsing through your body right now, but don't lose your cool. Check yourself and others for any injuries. If a person is seriously injured, do not attempt to move him or her unless there is immediate danger.
5. Call the police and ask for an ambulance if needed. Alert the police to any injuries and make sure you let them know if the accident is blocking the roadway. Get your bearings first so you can tell them where the accident is located.
6. Exchange information with the other driver. All drivers involved should exchange their name, telephone number, address, driver's license number, the name of their insurance company, the insurance policy number, and insurance company's phone number. Write down the make, model, year, and license plate number of the vehicle or vehicles involved and the names of any passengers that were in vehicles at the time of the accident.
7. If it is a serious accident and people stop to help, ask them to write down what they saw along with their name and telephone number. This is called a witness statement. If it is a serious accident and the witness cannot stay until police arrive to help, ask them to sign their statement and leave it with you to give the police. If you can, draw a diagram of the scene, showing where the cars were located and in which lanes the vehicles were traveling at the time of impact. Write down the date, time, and any contributing weather or road conditions.
8. Many law enforcement officers and insurance companies suggest that drivers carry a disposable camera with film in their glove compartment so if they are involved in an accident they can take pictures of the damaged vehicles, the roadway where the accident happened, and any skid marks.
9. When you speak with police, remember to answer their questions politely and say "sir" or "ma'am" when you speak to any adults or law enforcement personnel. Give your account of what happened as calmly as possible. Have your insurance information and your driver's license ready to show them.
10. So that you will know where to get a copy of the police report, find out the specific police department, sheriff's department, or highway patrol that responded to the accident.

11. Don't leave the accident until police release you to do so. If your vehicle is too badly damaged to drive it safely, call a tow truck to take it to your home or a repair shop.
12. Once you are cleared from the scene and able to, contact your insurance company. Give them the information about the accident and the contact information for the other person's insurance company.

### Motorcycle Safety

Riders who have fewer than six months of experience on their bikes are involved in more than half of all vehicle-motorcycle accidents.

Motorcycles use the same roads as cars and trucks and travel at similar speeds. A motorcycle, however, has two significant differences: instability and vulnerability. A motorcycle's two wheels cannot provide the same stability as a car's four wheels and thus requires more physical coordination than driving a car. Road conditions such as potholes, gravel, wet or slippery surfaces, pavement seams, railroad crossings, and grooved pavements that are minor annoyances to motorists can be major hazards to a motorcycle rider.

Before you get out on the open road on a motorcycle, take a nationally recognized course in motorcycle safety and defensive driving. Then get a lot of practice on rural roads and quiet side streets before you venture out in traffic. Because motorcycles vary in handling and responsiveness, you should ride a new or unfamiliar machine only in a controlled area until you are confident you can operate it safely.

On a motorcycle, a person does not have the protection that a car's metal body structure affords, so a motorcyclist is much more vulnerable to injury. For this reason, motorcyclists must drive extremely defensively. In collisions between motorcycles and other vehicles, drivers often report that they "just didn't see the motorcycle." Riders can enhance their visibility by applying reflective materials to the motorcycle, wearing bright-colored clothing, keeping the motorcycle headlights on at all times, and weaving slightly within the lane when they are behind a motorist so that the motorist will become aware of the presence of the motorcycle.



Always wear a helmet when you are on a motorcycle, regardless of whether your state requires them. A helmet will help protect you from serious, often fatal, head injuries.

These safety guidelines also apply to street-legal scooters and mopeds. Vehicles that are not street legal, such as go-carts and all-terrain vehicles (ATVs), should not be used for transportation on any public road or thoroughfare.

### Pedestrian Safety

Pedestrian safety is a serious issue because people who are walking across a roadway lose in any accident with a vehicle. Each year, nearly 5,000 pedestrians die in traffic crashes. Greater caution and courtesy by both drivers and pedestrians could prevent many of these fatalities.



Pedestrian safety means much more than just getting out of the way. Pedestrians must follow the rules and messages conveyed by roadside signs and markings. Here are specific safety guidelines for pedestrians.

- Always try to cross the street at a crosswalk or an intersection with a traffic signal. Even with traffic controls, intersections are dangerous for pedestrians. A significant percentage of pedestrian accidents occur at intersections. Be sure you look behind you and all around you for approaching cars before stepping off the curb.
- When crossing a street, stop and look left, then right, then left again, before stepping out. If you see a car, wait until it goes by and then look left, right, and left again until no cars are coming.
- Dress to be seen. Brightly colored clothing makes it easier for drivers to see you during the day. At night, wear white or light-colored clothing and reflective material on your shoes, cap, or jacket to reflect the headlights of cars coming toward you.
- Walk on sidewalks whenever they are available. If there are no sidewalks, walk facing traffic so that you can see any car that might go out of control. Walk as far off the roadway as possible.



If an intersection does not have pedestrian signals but has traffic signals, use them. Watch the traffic signal that controls traffic going in the desired direction. Wait until you have a green light before crossing.

Before you cross the street, always check to make sure no vehicles are turning in to your pedestrian lane.

## Pedestrian Crossing Signals

Pedestrians need to understand crossing signals. Some signals at pedestrian crossings use "Walk," or the symbol of a pedestrian, which means pedestrians may cross the street after making certain it is safe. A flashing "Don't Walk" message or the flashing orange symbol of a hand is a warning that the permitted time period for crossing is ending. Pedestrians already in the street should continue across to the other side or to a safety island. Pedestrians still on the curb should remain there until the next "Walk" signal. A steady (nonflashing) orange "Don't Walk" or a steady orange hand symbol means that pedestrians are not permitted to leave the curb because the light is about to change or has changed.



## School Bus Safety

More than 20 million students ride the bus to school on weekdays. School buses are one of the safest forms of transportation around. The greatest potential danger is not in riding the bus but in getting on and off or in moving around the bus.



Here are some safety guidelines for boarding and getting off of school buses.

- Be at the bus stop at least five minutes before the bus is due to arrive. If you are late for the bus, do not run recklessly across a street or down a road to catch it.
- When the bus approaches, step back and stand at least five long steps (10 feet) from the curb. That way the bus driver can pull up to the curb so you won't have to walk out into the street to board.
- Wait until the bus comes to a complete stop, the door opens, and the driver says it is OK to board before stepping onto the bus.
- If you drop something near or under the bus while getting on or off, tell the driver. Make sure the driver sees you, knows you are there, and won't begin to drive away as you are trying to pick up what you dropped.
- Use the handrail when you get off the bus. It will help you keep your balance if you stumble.
- Make sure that key chains, clothing, or your backpack does not snag on the handrail or get caught in the door. You could be dragged along beside the bus if the bus driver does not notice you and drives off.
- When getting off a school bus, walk three steps away from the door. Stay away from the bus's wheels and watch out for moving cars.



### Danger Zones

It is never safe to walk too close to the front of a school bus. The bus driver may be sitting up too high to see you. Always walk five long steps ahead of the bus before crossing in front of it, and make eye contact with the driver. Other danger zones include the sides and rear of the bus. Never walk close to the side of a school bus. Stay at least three long strides away from the side to stay out of the bus driver's *blind spot* (the spot where the driver cannot see you in the bus's mirrors). Also, avoid walking behind a school bus. The driver will not be able to see you back there.

### School Bus Safety for Motorists

Motorists driving in school zones must watch for students traveling to and from school. Children can be unpredictable, and it is the driver's responsibility to anticipate and be ready to react to what they may do. Following these guidelines will help you be aware when you drive near schools or on routes shared by school buses.

- Drive slowly. Watch for children walking in the street, especially if there are no sidewalks in the neighborhood.
- Watch for children playing and gathering near school bus stops.
- Be alert. Children arriving late for the bus might dash into the street or out from between parked cars without looking for traffic.
- Learn and obey the school bus laws in your state.
- Learn the systems of flashing lights that the school bus drivers use to alert motorists about stopping.

## What's So Special About a School Bus?

School buses have a number of safety features.

- Yellow flashing lights mean the bus is about to stop and load or unload riders. Cars must slow down and get ready to stop.
- Red flashing lights and an extended stop signal arm mean the bus has stopped and passengers are getting on or off. When the lights are flashing and the stop signal arm is extended, motorists traveling in all directions must come to a complete stop at a safe distance from the bus and resume driving only when the red lights have stopped flashing, the arm is retracted, and the bus has begun moving again.
- Side and rearview mirrors let the driver see what is going on around the bus—the cars approaching, the children walking up to the bus, and the bikes that might be close by.
- Emergency exits in the bus allow for passengers' quick escape and should be used only in an emergency. In any emergency the riders should listen to their driver for instructions.
- A crossing control arm is mounted on the front bumper and swings out when the door is opened. The arm is designed to keep children from walking close to the front of the bus.



Crossing control arm





## Navigating the Road

Becoming skilled in reading road signs, signals, and markings is important to your safety on the roads and highways. Equally important is learning and practicing safe, defensive driving skills and learning to anticipate and avoid potentially unsafe situations.

### Traffic Signals

A traffic signal is a traffic-control device that is designed so that everyone should instantly understand the message. Traffic signal design is standardized internationally for that reason.

**Red Light—STOP.** A red light always means stop. All states permit a right turn on a red light—after a stop—unless a sign prohibits it.

**Green Light—GO.** A green light means go, when and if it is safe to go. You may have the right-of-way, but always be sure the intersection is clear before proceeding. Many accidents are caused by drivers running red lights.

**Yellow Light—CAUTION.** A yellow light means that you should enter the intersection only if you can do so safely.

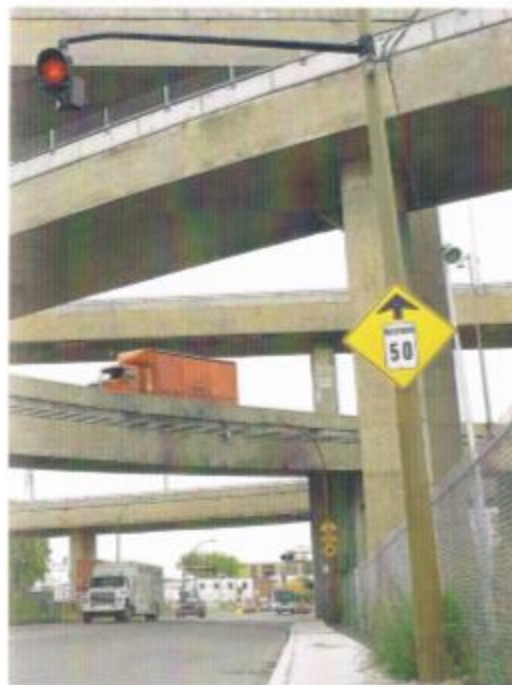
**Red Arrow—STOP.** A red arrow light means that no turn is permitted in the direction of the arrow.

**Green Arrow—GO.** A green arrow light means to go, only in the direction of the arrow, when it is safe to proceed.

**Yellow Arrow—CAUTION.** A yellow arrow light means that if you can do so safely, enter the intersection with caution and yield to oncoming traffic.

**Flashing Yellow—SLOW DOWN.** Proceed with caution.

**Flashing Red—STOP.** A flashing red light is the same as a stop sign. After stopping, proceed with caution when it is safe.



Highway traffic signs communicate their meaning with shape, color, symbols, and pictorial silhouettes.

### Traffic Signs

The shapes and colors of traffic signs have meaning. Some signs, such as "Stop" and "Yield," are so important that each has its own distinctive standardized shape and color. Other signs are grouped by color and shape. Most signs fit into six groups.

## Types of Traffic Signs

**Regulatory Signs.** Regulatory signs are typically rectangular, with black words or pictures on a white background. The "Stop" and "Yield" signs are exceptions. Symbol signs often include a red circle with a crossbar to indicate a prohibition. Motorists are required to obey regulatory signs. A police officer can give a driver a ticket for ignoring the message. A speed-limit sign is a good example of a regulatory sign.



**Warning Signs.** Warning signs are typically diamond-shaped and yellow with black words or pictures and a black edge. They are used to warn drivers of a condition ahead that may not be expected. Exceptions to the shape rule are the round "Railroad Crossing" symbol sign, the pennant-shaped "No Passing Zone" sign, and the pentagon-shaped "School Zone" and "School Crossing" symbol signs, which are fluorescent yellow-green to enhance their visibility.



**Guide Signs.** Guide signs are the most variable in shape and color. Guide signs include the large, rectangular, green signs used on interstate highways and many freeways to give drivers route and

destination information. Guide signs also include street signs and route shields such as the distinctive interstate and U.S. highway shields. Each state has its own standard marker for state and local routes.



**Service Signs.** Service signs are typically rectangular with white symbols on a blue background. The symbols indicate the availability of services such as gas, food, and lodging as well as phones and hospitals.



**Recreation Signs.** Recreation signs indicate that the road user is approaching some type of public recreation area such as a camping area, picnic area, or scenic overlook. These signs are rectangular with white symbols on a brown background.



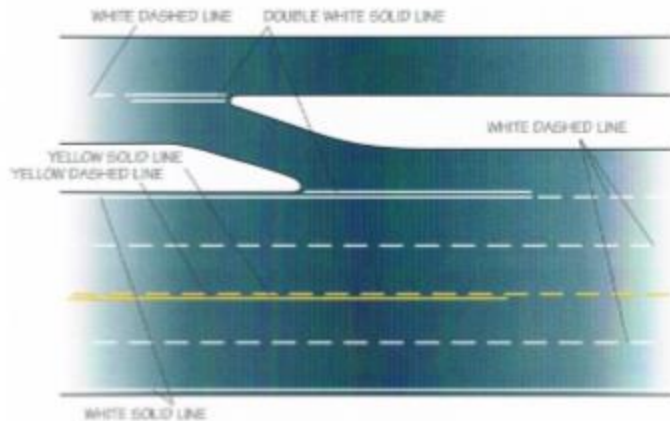
**Work Zone Signs.** Work zones, such as for highway construction or utility work, are marked with orange signs. These signs have information particular to work zones such as "Flagger Ahead" on a diamond or an ordinary symbol such as the curve warning. Work zones present a special situation that demands that drivers be alert and expect the unexpected. Men and women working on the roads risk injury and death just by being near traffic. Machinery and unfinished roads can pose hazards to drivers. Fines issued in a work zone can be doubled.

### Pavement Markings

Pavement markings, which are painted stripes on the road, mark lanes on highways and provide information regarding passing and changing lanes. These markings are typically either white or yellow solid lines or white or yellow dashed lines.

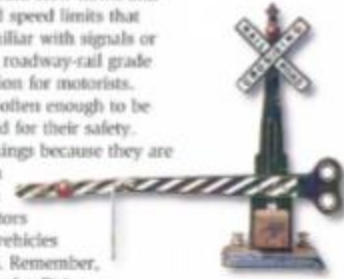
**White Lines.** Solid white lines mark the right edge of the road and are sometimes called "fog lines." Solid white lines also serve as a visual barrier to discourage lane changing in certain situations, such as in turn lanes at an intersection and where vehicles are entering or leaving a freeway. Dashed white lines separate traffic in the same direction on roads with multiple lanes.

**Yellow Lines.** Yellow lines mark the left edges of divided highways and separate traffic traveling in opposite directions. Double, solid yellow center lines mean no passing is allowed in either direction. A single, dashed yellow center line means that passing is allowed if the road ahead is clear.



### School Zone and Railroad Crossings

Distinctive fluorescent yellow-green signs tell drivers that they are approaching school zones. Drivers should slow down and pay careful attention to warning signs and speed limits that appear along with these markings. Be familiar with signals or markings for railroad crossings as well. A roadway-rail grade crossing presents an unusual traffic situation for motorists. Many drivers do not cross railroad tracks often enough to be familiar with the warning devices designed for their safety. Some ignore all warning signals and markings because they are in a hurry and would rather beat the train than wait for it to pass. Driver inattention and impatience are the most common factors contributing to collisions between motor vehicles and trains at roadway-rail grade crossings. Remember, motor vehicles *always* lose in these kinds of collisions.



### Safety Tips for Railroad Crossings

- Never drive around lowered gates at a railroad crossing. It is illegal and deadly.
- Never race a train to a crossing. Even if you tie, you lose.
- If your vehicle stalls on a crossing, immediately get everyone out of the vehicle and far away from the tracks. Call the local law-enforcement agency for assistance.
- If you are at a multiple-track crossing waiting for a train to pass, watch out for a second train on the other tracks that could be approaching from either direction.
- Always expect a train. Freight trains do not follow set schedules.
- Be aware that trains cannot stop quickly. A freight train moving at 55 miles per hour can take a mile or more to stop once the emergency brakes are applied. That's the length of 18 football fields!



A 17-year-old male drinking driver and his 16-year-old passenger attempted to pass a roadway-rail grade crossing despite the approaching train. The train hit the right side of the vehicle, killing both occupants.



### Interstate Highways

Interstate highways are a system of inter-connecting highways that crisscross the United States. They are numbered in a pattern to help aid navigation. One- or two-digit even-numbered interstate routes are east-west highways. (Even though locally they might not run east and west, overall they are intended to serve east-west travel.)

Route numbers increase from south (I-10) to north (I-94). One- or two-digit odd-numbered interstates are north-south highways. Numbers increase from west (I-5) to east (I-95).

Three-digit interstate highway numbers connect to other major highways. If the first digit is an even number, the highway usually connects to another interstate at both ends, forming a beltway or loop. If the first digit is an odd number, the highway is usually a spur route that connects to another interstate highway at only one end, sometimes going into a city center.

Interstate highways show the distance between points with mile markers placed along the road shoulder. Mile markers show the number of miles from where the route entered the state, or from the beginning of the route if it starts within the state. The count starts at the state line in the south (for north-south routes) or in the west (for east-west routes). Knowing how to read mile markers can help you

- Know where you are.
- Determine how far it is to your destination.
- Give an exact location if you need to report an emergency or need assistance.



### Common Driver Distractions

Road signs help you know what to expect as you drive down a highway or through city traffic, but as a driver you also must always remain alert and be ready to deal with the unexpected. It is essential to give driving your full attention and keep all distractions to a minimum.

The next time you and your friends head out in the car, whether it is down the street or for a weekend campout, think about the types of distractions you could face that might result in an accident. Here are five of the most common distractions.

1. **"Rubbernecking."** When drivers take their eyes off the road to gawk at an accident, look at the people in another vehicle, or gaze at the scenery, they cause a considerable number of traffic accidents.
2. **Mobile Phones and Other Portable Devices.** Mobile phones and devices such as MP3 players also are likely to contribute to collisions on the road. When drivers talk on the phone while driving, their reaction times are impaired to such an extent that they react similarly to the way a drunken driver would. Phones also cause drivers to take their eyes off the road for precious seconds as they look down to retrieve a ringing phone or search for a phone number. In those distracted moments, a driver could drift into oncoming traffic or fail to see that the car ahead is stopped.
3. **Music.** A study conducted by the University of North Carolina Highway Research Center found that drivers are six times more likely to have an accident while searching for a radio station or inserting a CD than while glancing at the speedometer or the fuel gauge.

If you want to change a CD or the radio station, ask a friend for help with the music or wait until you get to a red light in traffic. Also, be sure to keep the volume low enough that you can always hear sirens and emergency vehicles coming.

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If your mobile phone rings or you desperately need to make a call, pull off the road safely first before answering or dialing.

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If passengers start to roughhouse or goof around while you are driving, firmly tell them to calm down so you can concentrate on driving.

- 4. Passengers.** A driver's passengers can be just as much of a distraction as a mobile phone conversation. The more passengers there are in a car, the greater the risk of having an accident. Drivers should keep conversation with passengers to a minimum.
- 5. Eating and Drinking.** Drivers need to keep both hands on the wheel while driving. Eating or drinking while driving can lead to accidents. In addition, when a driver is trying to eat and drive, his or her focus moves from its proper place on the road to the fast-food bag on the car seat.

### Gauging Braking Distances

An alert and experienced driver knows that a car cannot stop on a dime—time and a considerable amount of distance elapse between the time you decide to apply the brakes and the time your vehicle actually slows to a stop. Suppose you are traveling down the highway at 60 miles per hour when you notice a small child in the road. Your vehicle will need approximately 150 feet to 172 feet to stop depending on the road surface and the condition of the brakes and tires. This distance is known as *braking distance*.

Being able to judge braking distance is very important, but be aware that it is not the only factor that affects how far a car will travel before it stops. Drivers also need time to apply the brakes after they have decided to stop. The average time that elapses between making the decision to stop and actually applying the brakes—*reaction time*—is three-quarters of a second. In this time, with the car going 60 miles per hour, it will have traveled another 66 feet. If it takes the driver a whole second to react, the car travels 88 feet. If a second and a half pass, the vehicle travels 132 feet. This is known as *reaction-time distance* (or *driver-reaction distance*). The table shows approximate braking distances and reaction-time distances on dry, level pavement for well-maintained cars traveling at typical city and highway speeds.

Speed (mph)	Braking Distance (feet)	Average Reaction-Time Distance (feet)
30	43	33
40	75	44
50	113	56
60	172	66
70	234	77

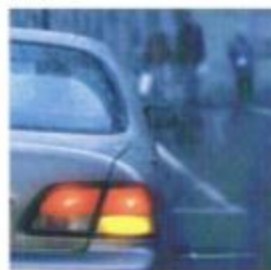
### Braking Distances at Night

Visibility decreases at night, impairing a driver's ability to see and react to unexpected situations. At night, when a driver can see only as far as the headlights allow, the difficulty of stopping in time to avoid an accident increases. Low-beam headlights allow the driver to spot an object on the road about 160 feet ahead of the vehicle, but headlights cannot follow curves, hills, or dips in the road.



One more time factor must be considered. This is the period between the moment the driver recognizes there is a dangerous problem and the instant the driver decides to take action and apply the brakes. This *perception-time distance* varies widely, depending on the circumstances and the attentiveness of the driver. The driver could be sleepy or distracted, have poor eyesight, or be under the influence of alcohol or drugs. This factor and the reaction time are highly variable, but they are always present and will lengthen all braking distances.

Weather conditions such as rain, snow, sleet, and ice also can affect stopping distances. On a wet road, stopping requires up to four times the distance normally needed on a dry road. When driving at about 50 miles per hour during a heavy rain, the water can literally lift the vehicle's tires off the road. To prevent hydroplaning, you will need to slow down. Heavy rain is not the only factor that can cause a spin or slide. During a light drizzle, a little water combined with the oil that has accumulated on the road produces a slick, greasy film that can decrease traction.



*Glare recovery* is another problem that may affect stopping distances at night. The glare from the headlights of oncoming traffic causes the pupil of the eye to constrict. Once past the bright light, the pupil needs time to readjust to less light. During the adjustment time, a driver could be blinded, greatly increasing his or her chances of having an accident.



### Driving at Safe Speeds

When traffic engineers design roadways, they determine safe speed limits for the road. Traveling too fast for the conditions or in excess of the posted speed limit is speeding. Many crashes are caused by traveling at excessive speed. The faster a motorist drives, the more time and distance is needed to stop, the less time there is to react, and the greater the impact or striking power of the vehicle. If the vehicle's speed doubles from 20 to 40 miles per hour, the impact is actually four times greater. Triple the speed from 20 to 60 miles per hour, and the impact and the braking distance are nine times greater. Drivers should be fully aware of the potential destructive power of a speeding vehicle.

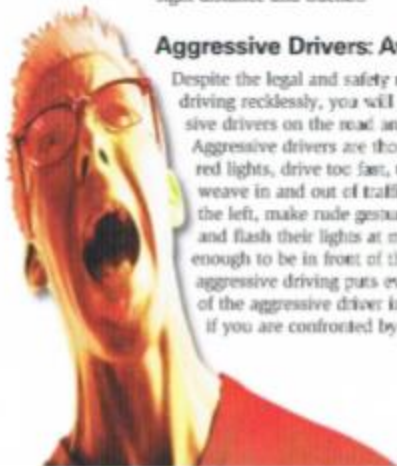
When driving conditions are less than ideal, a person operating a motor vehicle on the highway is required by law to drive at a careful and prudent speed. You will need to decrease your speed, probably below the posted speed limit, for any of the following conditions:

- Heavy, congested, or slow-moving traffic
- Rough, icy, or wet road surfaces, or other circumstances in which traction is poor
- Narrow roadways that reduce the margin of safety
- Weather conditions (rain, snow, fog, dust, smoke) that affect sight distance and traction

### Aggressive Drivers: Avoiding Road Rage

Despite the legal and safety ramifications of speeding and driving recklessly, you will undoubtedly encounter aggressive drivers on the road and it is best to be prepared.

Aggressive drivers are those who run stop signs and red lights, drive too fast, tailgate (follow too closely), weave in and out of traffic, pass on the right instead of the left, make rude gestures, or scream, honk, and flash their lights at motorists who are unlucky enough to be in front of them. Also known as road rage, aggressive driving puts everyone in the vicinity of the aggressive driver in danger. Here is what to do if you are confronted by an aggressive driver.



Road rage can be contagious. If you find that a driver's aggressive behavior is making you angry, take a deep breath and try to relax and let your anger dissipate.

- Try to get out of the person's way. Do not further anger the aggressive driver by speeding up or attempting to keep him or her from passing.
- Avoid making eye contact with the enraged driver.
- Do not respond to rude gestures, screaming, or incessant honking. Doing so will likely escalate the situation.
- If you have a mobile phone, find a safe place to pull over and call the police (911 or the emergency number for your local area). Report the aggressive driver and provide the police with details about the driver's location, direction of travel, license number, and vehicle make and model.

If you find yourself riding with a driver who is driving aggressively and dangerously, do not grab the steering wheel. Such a move can instantly cause a crash. Try to find a believable excuse for the driver to stop the car. Saying that you are going to be sick probably would work. Then leave and call home for a ride or make other arrangements for safe transportation.



### Ten Deadly Teen Driver Mistakes—and How to Avoid Them

This list comes from AAA, the American Automobile Association.

- 1. Overconfidence.** Expect the unexpected. Inexperience and overconfidence can lead to crashes when new drivers encounter unfamiliar or unexpected situations. Practice driving with an experienced adult driver, and gradually take on more challenging driving conditions.
- 2. Not buckling up.** Use a safety belt and insist that all your passengers do so as well. About two-thirds of teens killed in vehicle crashes were not wearing safety belts. Wearing a safety belt reduces your chances of being hurt or killed in a crash by as much as 45 percent.
- 3. Speeding.** Stick to the speed limit. One-third of teen fatalities involve speeding. Driving the speed limit increases your chance to avoid a crash and reduces the severity of a crash.
- 4. Rowdy passengers.** Don't load up your car with friends. Teenage passengers can be a major distraction for novice drivers. Adding one teen passenger to a vehicle increases a 16- or 17-year-old driver's crash risk by about 50 percent. With two or more teen passengers, the crash risk increases fivefold.
- 5. Talking on a cell phone.** Focus on driving; save the phone calls, text messaging, and other gadgets for after the driving is done. Talking on a cell phone while driving slows any driver's reaction time considerably, regardless of age.

- 6. Fiddling with the CD player or radio.** Driving and channel-surfing don't mix. Research shows that adjusting the radio is the most common distraction for drivers ages 16 to 20. Wait until you are safely parked before changing a CD or adjusting the radio.
- 7. Late-night cruising.** Don't drive late at night. Teen crash rates at night (9 P.M. to 6 A.M.) are twice as high as daytime rates. Nighttime driving is more dangerous for everyone, and young drivers are even more likely to be involved in crashes caused by drowsy driving.
- 8. Drinking and driving.** Stay sober. Of 16- and 17-year-old drivers killed in crashes, 16 percent would have been considered legally intoxicated by adult standards. Drinking and driving is never a good idea, especially when you are underage and still learning to drive.
- 9. Getting into a bad situation.** Make good choices. Teen driver crashes kill nearly as many passengers of teen drivers as they do teen drivers themselves. Before you get in a car with a friend, assess the situation: *Is this a person you would trust? Is he in the right frame of mind to drive safely? Is he sober and alert? Are the other passengers likely to influence him to drive recklessly?*
- 10. Taking risks.** Know that it can happen to you. Car crashes are the leading cause of injury and death for people ages 15 to 20. And it's not just about you: Crashes affect pedestrians, passengers, and other drivers, as well as their families. You don't want to do something you will regret for the rest of your life.





## Traffic, Your Community, and You

To complete requirement 5, you have four options. If you decide to complete requirement 5a, you will need to interview a traffic law enforcement officer in your community to find out which three traffic safety problems are of most concern to that officer. Discuss these concerns and possible solutions with your merit badge counselor.

If you elect to do requirement 5b, you will use the Internet (with your parent's permission) to visit five websites that cover safe driving for teenagers. The Resources section at the back of this pamphlet lists sites you might visit. Take notes as you read the information on the sites, or print out pages that contain information you feel is especially important for teens to understand. Discuss your findings with your merit badge counselor and at least three other teenagers.

If you decide to do requirement 5c, you will initiate and organize an activity to demonstrate the importance of traffic safety. The remainder of this chapter has a variety of ideas that can be adapted for your merit badge project. These suggestions may help get your creativity flowing and provide the spark needed to create your own project.

If you plan to do requirement 5d, work with your merit badge counselor or another adult to choose a controlled intersection that has a safe spot from which you can observe the flow of traffic on three separate days and at three different times for 30 minutes on each visit. Take a notebook and a pen or pencil so that you can record your observations. You might want to draw up your chart in advance (with columns for specific traffic violations, the gender of the driver, and the age of the driver). After you have compiled your observations, calculate the percentages of violations and discuss your findings with your merit badge counselor.



### Organizing Traffic Safety Programs and Activities

The following are examples of traffic safety programs and activities that young people have successfully developed in their schools and communities.

#### Buckle Up!

When a high school student in Frederic, Wisconsin, was killed in a crash because he was not wearing a safety belt, fellow classmates launched a "Buckle Up, Frederic!" campaign to educate the community on the importance of using safety belts. The students developed a safety belt survey, which they conducted at the school and at a major intersection in town. The surveys found that only 43 percent of students and 37 percent of other residents were wearing safety belts.

They published the results in a brochure that contained other safety belt information and distributed the brochure and other literature to the school and community. Other materials they developed and activities they organized included the following:

- Displays on safety belt use for a local bank
- "Buckle Up!" fliers that they placed on car windshields
- A coloring contest on buckling up for grades 1 through 5
- Lesson plans for grades K through 8
- Presentations to elementary and middle school children
- A multimedia show on safety belt use for grades 9 through 11

Students wrote articles and editorials for local newspapers and recorded public service announcements (PSAs) with original music that aired on local radio stations. The result? A second survey, conducted after the campaign, showed a 37 percent increase in safety belt use among students and a 33 percent increase in the community overall.



#### Bicycle Rodeo

Teaching biking safety to younger children by organizing a bicycle rodeo promotes safe cycling in a fun way. A bike event takes lots of planning. Here's a checklist to help you get started.

- Identify where the bike rodeo will be held and get permission to use the location.
- Develop event and staffing schedules. Plan contests that challenge balance and control and that test skills needed for safe street riding. Suggested skills include the following:
  - Riding slowly in a straight line for 60 feet. At about 30 feet, the rider should look over his or her left shoulder to check for traffic behind while maintaining a straight line.
  - Maneuvering through an obstacle course to test the rider's ability to change directions quickly.
  - Turning in a limited space to test the bicyclist's ability to turn around smoothly and easily.
  - Signaling with the proper hand signals.
  - Making a controlled stop.

- Have educational materials on helmets, proper clothing for biking, and other bike safety issues available to hand out to participants at registration.
- Make a display of helmets to show contestants and their parents the different types available. Be prepared to discuss national safety standards, fit, pricing, and helmet replacement.
- Invite a uniformed police officer or a member of a bike advocacy organization to be at your event to provide information on bike riding rules.
- Invite someone from a local bike shop to provide bike inspections.
- Provide engraving against theft. Engraving a parent's license plate number on the frame of the bike is the easiest way to trace ownership if the bike is stolen.
- Arrange for refreshments. At the least, have water available. Politely ask local stores and businesses if they would be willing to donate snacks and beverages.
- Publicize your event. Post fliers, and write press releases to distribute in newspapers, radio stations, and television stations.

#### **BAAM (Bicycles, ATVs, Alcohol, Motorcycles) Program**

To help instill a responsible attitude toward driving in teens who have not reached the legal driving age, work with law enforcement agencies and school groups to present a week of traffic safety activities for middle school students. Have



students make daily safety tip announcements for bicycles, all-terrain vehicles (ATVs), and motorcycles. Distribute printed materials about the consequences of underage drinking.



#### **More Ideas**

Here are some other ideas for traffic safety awareness activities.

- Organize a mock trial to show the legal consequences of driving while impaired.
- Have an expert on traffic safety speak at a school assembly.
- Hold a schoolwide trivia quiz based on traffic safety facts and statistics.
- Organize a "Save our Seniors" (SOS) program at a local high school. Seniors who sign the SOS pledge will agree to stay alcohol- and drug-free, always wear safety belts, and maintain a clean driving record during their senior year.
- Organize a program for elementary school students on pedestrian safety.
- Get involved with an existing group, such as SADD or your student council, to promote traffic safety and the prevention of alcohol and drug abuse.



## Traffic Safety Resources

### Scouting Literature

*Automotive Maintenance, Citizenship in the Community, Cycling, Emergency Preparedness, Engineering, First Aid, Railroad, Safety, and Truck Transportation* merit badge pamphlets

Visit the Boy Scouts of America's official retail website at <http://www.scoutstuff.org> for a complete listing of all merit badge pamphlets and other helpful Scouting materials and supplies.

### Books

Aaseng, Nathan. *Teens and Drunk Driving*. Lucent Books, 2000.

Alliance for Safe Driving. *License to Drive*. Delmar, 1999.

Berandelli, Phil. *Safe Young Drivers: A Guide for Parents and Teens*. Nautilus Communications, 1998.

Boelts, Maribeth. *A Kid's Guide to Staying Safe on Bikes*. Powerkids Press, 1998.

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Burke, Edmund R. *Serious Cycling*. Human Kinetics, 2002.

Carr, Woodii. *The ABCs of Driving*. Integrated International Systems, 1998.

Ditchfield, Christin. *Cycling*. Children's Press, 2000.

Gerdes, Louise I. *Drunk Driving*. Greenhaven Press, 2001.

Hewitt, Ben. *New Cyclist's Handbook*. Rodale Inc., 2005.

James, Leon, and Diane Nahl. *Road Rage and Aggressive Driving: Steering Clear of Highway Warfare*. Prometheus Books, 2000.

Johnson, Margaret; Owen Crabb; Arthur Opler; and Ronald Budig. *Drive Right*, 10th ed. Scott Foresman Addison Wesley, 2000.

Knox, Jean McBee. *Drinking, Driving, and Drugs*. Chelsea House, 1998.

Pavelka, Ed, and Editors of Bicycling Magazine. *Bicycling Magazine's Complete Book of Road Cycling Skills*. Rodale Inc., 1998.

Pease, Robert A. *How to Drive into Accidents and How Not To*. Pease Publishing, 1998.

Wallace, Roy M., and Bill Katovsky. *Bike for Life*. Marlowe & Co., 2005.

**Organizations and Websites**

Information is also available from your local police department (traffic division), sheriff's department (traffic division), state police or highway patrol, city or county prosecutor's office, traffic court, emergency medical services (EMS), and state highway safety office. Check your local telephone directory for non-emergency phone numbers and addresses.

**Allstate Foundation Teen Safe Driving Program**

Website:  
<http://www.allstate.com/community>

**American Automobile Association Foundation for Traffic Safety**

607 14th St. NW, Suite 201  
Washington, DC 20005  
Telephone: 202-638-5944  
Website: <http://www.aaafoundation.org>

**Mothers Against Drunk Driving (MADD)**

511 East John Carpenter Freeway,  
Suite 700  
Irving, TX 75062  
Toll-free telephone: 800-GET-MADD  
Website: <http://www.madd.org>

**National Center for Injury Prevention and Control**

Mailstop K65  
4770 Buford Highway NE  
Atlanta, GA 30341-3724  
Telephone: 770-488-1506  
Website: <http://www.cdc.gov/ncipc/dulp/spotlite/teendrivers.htm>

**National Commission Against Drunk Driving**

8403 Colesville Road, Suite 370  
Silver Spring, MD 20910  
Telephone: 240-247-6004

**National Highway Traffic Safety Administration**

400 Seventh St. SW  
Washington, DC 20590  
Toll-free telephone: 800-327-4236  
Website: <http://www.nhtsa.dot.gov>

**National Safety Council**

1121 Spring Lake Drive  
Itasca, IL 60143-3201  
Telephone: 630-285-1121  
Website:  
<http://www.nsc.org/issues/drivsafe.htm>

**Online Study Guide for Student Drivers**

Website: <http://glocalnet.com>

**Road Ready Teens**

Website: <http://www.roadreadyteens.org>

**SAFE KIDS Worldwide**

1301 Pennsylvania Ave. NW, Suite 1000  
Washington, DC 20004-1707  
Telephone: 202-662-0600  
Website: <http://www.safekids.org>

**Students Against Destructive Decisions (SADD)**

National Office  
255 Main St.  
Marlborough, MA 01752  
Toll-free telephone: 877-SADD-INC  
Website: <http://www.sadd.org>

**Teendriving.com**

Website: <http://www.teendriving.com>

Your state department of motor vehicles will also be a good resource. Look in the telephone book or, with your parent's permission, search the Internet.

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American Business	2002	Entrepreneurship	2006	Photography	2005
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American Heritage	2005	Family Life	2005	Plant Science	2005
American Labor	2006	Farm Mechanics	2008	Plumbing	2004
Animal Science	2006	Fingerprinting	2002	Pottery	2006
Archaeology	2006	Fire Safety	2004	Public Health	2005
Archery	2004	First Aid	2007	Public Speaking	2002
Architecture and Landscape Architecture	2010	Fish and Wildlife Management	2004	Pulp and Paper	2006
Art	2006	Fishing	2009	Radio	2006
Astronomy	2010	Fly-Fishing	2009	Railroading	2003
Athletics	2006	Forestry	2005	Reading	2003
Automotive Maintenance	2006	Gardening	2002	Reptile and Amphibian Study	2005
Aviation	2006	Genealogy	2005	Rifle Shooting	2001
Backpacking	2007	Geocaching	2010	Rowing	2006
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Bird Study	2005	Golf	2002	Salesmanship	2003
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Camping	2006	Hiking	2007	Scouting Heritage	2010
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Cinematography	2006	Indian Lore	2006	Shotgun Shooting	2005
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Citizenship in the Nation	2005	Investing	2010	Small-Boat Sailing	2004
Citizenship in the World	2005	Journalism	2008	Snow Sports	2007
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Collections	2006	Leatherwork	2002	Sports	2006
Communication	2006	Leisaving	2006	Stamp Collecting	2007
Composite Materials	2006	Mammal Study	2002	Surveying	2004
Computers	2006	Medicine	2009	Swimming	2006
Cooking	2007	Metalswork	2007	Tackle	2002
Crime Prevention	2006	Model Design and Building	2010	Theater	2005
Cycling	2003	Motorboating	2008	Traffic Safety	2006
Dentistry	2006	Music and Bugling	2010	Truck Transportation	2005
Disabilities Awareness	2005	Nature	2003	Veterinary Medicine	2005
Dog Care	2003	Nuclear Science	2010	Water Sports	2007
Drafting	2006	Oceanography	2009	Weather	2006
Electronics	2004	Orienteering	2002	Whitewater	2005
Emergency Preparedness	2008	Painting	2008	Wilderness Survival	2007
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