In the previous four chapters, you began developing your smart driving skills by learning the basics of driving:

- being a thinking driver
- maintaining a safe vehicle
- understanding signs, signals and road markings
- knowing the rules of the road.

This chapter will bring all of these concepts together and describe how to use them as part of see-think-do — a driving strategy that helps you to be a safe and competent driver.

**see** — scan for hazards. Pay attention to other road users and the areas where hazards could occur.

**think** — decide which hazards are the most dangerous. Think quickly about possible solutions. Decide on the safest solution.

**do** — do manoeuvres to keep yourself and others safe.

### see-think-do

Whenever you drive, your eyes should be scanning the area around you to gather information. Good observation means knowing how to look and where to look. The next step is hazard perception — knowing what to look for.

### Observation

Good observation involves looking ahead, beside and behind.

#### You in the driver’s seat

*You’re driving along a city street, scanning well ahead. You check your mirrors — the car behind is keeping well back. There is an intersection ahead. You carefully scan the intersection to see if it’s clear before you proceed.*
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Strategies: the observation cycle

Always keep your eyes moving while you’re driving:
• look well ahead
• scan from one side of the road to the other, checking for potential hazards
• glance in your rear- and side-view mirrors to keep track of what is happening behind you.

Then start all over again. You should complete the whole cycle every five to eight seconds.

Observing ahead

Research shows that new drivers spend so much time looking at the road just in front of their vehicle that they often miss hazards further ahead. Make sure you know what’s coming up by scanning at least 12 seconds ahead. This means look one to two blocks ahead in city driving and half a kilometre ahead on the highway. This will give you time to prepare for a potential hazard instead of being taken by surprise.

As you look ahead, scan to the left and right so you can see what’s happening along the sides of the road. If you see cars parked by the side of the road, be careful. A child may be walking out from between them, or a door might be about to swing open.

warning!

Don’t overdrive your ability to see. You should always be able to stop within the distance you can see.

driving tip

By looking ahead, you can avoid sudden stops, which increase your fuel consumption.

It’s easiest to see things that are directly in front of you, in your central vision. But it’s important to also pay attention to things outside your central vision. Peripheral vision allows you to see more than what is directly in front of you.
Observing behind

Your side- and rear-view mirrors let you know what is happening behind you. Adjust them to get the best possible view. Look in each mirror about every five to eight seconds and pay attention to what you see.

Rear-view mirrors — look in the rear-view mirror before you slow down or stop. Will the cars behind you have space to stop? If not, you may need to take action.

Side-view mirrors — use your side-view mirrors whenever you are planning to change your road position or direction. When you’re pulling away from the right side of the road, you need to check your left mirror to make sure there are no cars coming from behind. If you’re making a lane change to the right, check your right mirror to make sure there’s enough space to move into.

Blind spots — even when your mirrors are properly adjusted, there are large areas that you can’t see in your mirrors. These are called blind spots. The most dangerous blind spots are to the side. There are also blind spots below your field of vision to the front, rear and both sides of your vehicle.

Blind spot detectors, cameras — Some vehicles are equipped with blind spot detectors and/or back-up cameras. While these can help you to detect hazards in blind spots or behind the vehicle, they do not replace the need to turn your head to do a shoulder check or look behind.

Shoulder checks — whenever you plan to change your direction or road position, do a shoulder check to make sure the blind spot on that side is clear.

When you’re going to turn right, for example, quickly check to the right just to make sure no one is in that space. And don’t forget to do a mirror check and shoulder check before you open your door to get out of your vehicle. A cyclist or other vehicle could be coming up beside you.
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Strategies: making your move

Check your mirrors and do a shoulder check whenever you plan to:
- pull out from the side of the road
- pull over to the side of the road
- change lanes
- turn left or turn right.

Backing up — before you back up, make sure you do a 360-degree vision check. Look all around the vehicle using shoulder checks and mirror checks, and then turn your body to look out the rear window while backing up. Be especially careful when you’re backing out of a driveway. It’s easy to miss seeing children, pets, pedestrians, cyclists and people in wheelchairs. If you’ve been stopped for some time, walk around the back of your vehicle to check that your path is clear. Better yet, try to back into driveways and parking spots so you can drive out facing forward.

Observing at intersections

Look well ahead as you approach an intersection. Check for signs, signals and other clues about whether you will need to stop.

As you’re approaching an intersection, scan the road you are crossing — look left, centre, right, then glance left again. If an oncoming vehicle is turning left, take extra care — the driver may not see you. And check crosswalks you intend to cross to make sure they are clear.
Bushes and large vehicles are two of the many things that could block your view of an intersection and oncoming traffic. Can you think of some other things that might block your view of an intersection?

Stopping and starting up again — as you slow down to stop, check your mirrors for traffic behind you. Then make sure you have a clear view of the intersection. You may need to move slowly into the intersection if your view is blocked so you can see clearly before going ahead.

Turning — shoulder check to make sure a cyclist or other road user hasn’t come up beside you. Then scan the intersection just as you begin to move forward. Make sure that your eyes are looking in the direction you want to go once you begin your turn.

Hazard perception

You in the driver’s seat

You’re driving in the rain, using your eyes to gather information ahead, to the sides and in your mirrors. Just ahead there’s a cyclist. Further on, a bus has stopped to let passengers out. Just behind you is a driver who seems to be moving up too close behind you. Suddenly, the door of a parked car swings open right in front of the cyclist. Will the cyclist swerve or fall? You take your foot off the accelerator to slow down, and get ready to put your foot on the brake.

Driving safely means looking out for hazards. A hazard is anything in the driving environment that could harm you or other road users. Hazard perception is the skill of identifying these hazards. To share the road safely, train yourself to look for other road users and all objects or road surfaces that might cause problems for you or for others in the driving environment. As you drive, think about where hazards could occur.
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The driving environment includes everything around you, including other road users, road conditions, weather conditions and all activities at the side of the road that might affect you.

Space conflicts
A space conflict happens when two road users try to move into the same space at the same time. To drive safely, you need to keep areas of space — called space margins — around your vehicle. If you need to stop suddenly, a driver too close behind you could cause a space conflict. Some other space conflicts are:

- a vehicle pulling into your path
- a pedestrian stepping onto the road in front of your vehicle
- a vehicle backing out of a driveway.

Surprises
Anything unpredictable is a hazard. A car door opening suddenly could be a surprise for a cyclist. If the cyclist swerves to avoid it or falls in front of you, you could be surprised as well. To avoid surprises, think well ahead and ask yourself what could possibly happen in the driving environment. Some other surprises are:

- a driver weaving back and forth
- a poorly loaded pickup truck — something might fall
- a skateboarder who might suddenly dart onto the road.
Vision blocks

Having your vision blocked is a hazard. Some examples of vision blocks are:

- a bus that blocks your view of people about to cross the street
- a curve or hill that doesn’t let you see what’s ahead
- a large truck in the next lane
- fog, rain or snow.

Be very careful when you can’t see the whole driving scene.

Poor road conditions

Poor road surfaces are a hazard because they can affect your traction and steering. Loose gravel, ice or rain can cause you to lose control unless you’re prepared. Some other poor road conditions are:

- a paved road that suddenly changes into a gravel one
- wet or icy patches
- large puddles after a rainstorm.
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see-think-do

Whenever you drive, you will see hazards. To make good driving decisions, follow this two-step process:

1. Assess the risk.
2. Choose the best solution.

Assess the risk

You in the driver’s seat – part 1

You’re driving down a two-lane highway, and are just starting into a sharp curve. You can’t see very far ahead.

In this scene, the risk is moderate. You can’t see well ahead, so you need to slow down a little and be cautious.

You in the driver’s seat – part 2

As you go into the curve, a driver in a red car behind pulls out to pass you, even though the highway is divided by a solid double yellow line.

Now the risk increases. This is not a good time for that driver to pass because there may be all kinds of hazards just around the curve.

To assess just how risky this situation is, ask yourself what could happen. What if that driver finds an unexpected obstacle just around the curve? He may have to slow down and stop suddenly or pull back into your lane. That means you need to be ready to slow down or stop if necessary.
You in the driver’s seat – part 3

As you come around the curve, you see a large truck in the approaching lane. The car that is passing you may cut in front of you, trying to get out of the way of the truck. To make matters worse, you see a fallen branch on the road ahead.

When you find yourself in a situation with more than one hazard, what do you do? You need to figure out which hazard is the most dangerous.

Choose a solution

You in the driver’s seat – part 4

Here you are, with a car trying to squeeze in front of you. What solutions can you think of? You could:

• slow down
• steer out of the way
• honk your horn.

All these solutions involve speed control, steering, space margins and communication.

As you think of possible solutions, try to predict the possible outcomes of each one. Here’s a slowed-down version of what your thinking process might look like:

Speed control

• Can I slow down quickly, or is the road too slippery? Will I skid?
• Can my vehicle stop that quickly? Are my brakes and tire tread good enough?
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You in the driver’s seat

You’re driving along a rural road at 80 km/h. A yellow sign warns there’s a sharp curve ahead. You take your foot off the accelerator and apply the brake to slow down to 30 km/h before the curve. At the midpoint of the curve, you accelerate slightly, and speed up once more on a straight stretch. Then you notice something up ahead which looks like a road construction sign. You take your foot off the accelerator to slow down.

Steering

• If I steer onto the right shoulder, can I keep control of the car?

Space margins

• Do I have space to stop safely? Is there space ahead? Space behind? Is there a car behind that might crash into me if I stop suddenly?

• Do I have enough space to steer onto the shoulder?

Communication

• If I honk the horn, will it help to alert the driver?

Usually, the solution you choose depends on where the space is. Is there enough space in front? To the side? Space will allow you to get out of the situation safely.

Some decisions have to be made in seconds. This means you need lots of practice in assessing risk and choosing the best solution. Practise by thinking ahead about what you would do in emergency situations.

see-think-do

Once you’ve assessed the risk and have chosen a solution, you need to use your driving skills to perform the manoeuvre. The “do” step of see-think-do involves:

• speed control

• steering

• space margins

• communication.

All of your driving manoeuvres will combine these four skills, whether you are driving straight, turning at an intersection or swerving to avoid a hazard.

Speed control

You are passing an elementary school. A soccer ball rolls onto the road about half a block ahead. Assess the risk — what is the major risk? Choose the best solution — what would you do?
You are using the tools of speed control — the accelerator and the brake. If you drive a vehicle with a standard transmission, you’ll also use the gears to help you control your speed. Good speed control means maintaining appropriate and steady speeds based on the driving conditions.

**Appropriate speeds**

Speeding is risky, but the safest speed isn’t always the slowest speed. If you drive much slower than surrounding traffic, other drivers might get frustrated and try to pass you.

Aim for a speed that’s appropriate for the conditions in which you are driving. The posted speed is the maximum for ideal conditions only. Choose a slower speed if the conditions are not ideal — for instance, if the roads are slippery or visibility is limited.

Unless a sign tells you otherwise, speed limits are:

- 50 km/h within cities and towns
- 80 km/h outside cities and towns
- 20 km/h is the maximum speed limit in a lane or alleyway within municipalities unless otherwise posted.

**Steady speeds**

To keep a steady speed, use your brake and accelerator smoothly. Driving up to a stop sign quickly and then hitting the brake isn’t good for your passengers or your vehicle. It can also cause the driver behind to crash into the rear of your vehicle.

To keep your driving speed smooth and steady, you need to anticipate. When you see a stop sign, start to slow down. Scan for hazards ahead, and use your brakes to gradually slow your vehicle.

**Physics and driving**

You need to pay attention to the laws of physics when you drive:

**Traction** — this is the grip your tires have on the road.
Slippery or sandy road surfaces, worn tires, and under- or over-inflated tires that don’t grab the road will reduce traction. Slow down if you are on a poor road surface.

**Inertia** — this is the tendency for moving objects — in this case, you and your vehicle — to continue moving forward in a straight line. When you brake, inertia tries to keep your vehicle moving. When you go around a curve, inertia tries to keep you going in a straight line. The faster you are going, the greater the force of inertia.

**Gravity** — this is the force that pulls everything towards earth. It’s the reason your vehicle slows down going up a hill and speeds up coming down. It’s important to remember this when you’re going downhill because your vehicle will need a longer distance to stop.

**Centre of gravity** — this is the point around which all of an object’s weight is balanced. The centre of gravity for any object can change. For example, a tightrope walker may carry a pole to lower the body’s centre of gravity and make it easier to balance.

Most vehicles are built on the same principle — low enough to the ground so they balance well on hills, curves and uneven road surfaces. But some vehicles — for example, some sports utility vehicles, pickup trucks and camper vans — have a higher centre of gravity. Whenever the height of a vehicle or its load rises, the centre of gravity also rises. A vehicle with a higher centre of gravity is less stable on uneven road surfaces and is more likely to tip over on a curve taken at higher speeds. You need to remember this if you are driving one of these types of vehicles.

The blue car has a low centre of gravity. On a curve, the weight shifts to one side but the car remains stable. The truck, with its large wheels, has a much higher centre of gravity. On a flat surface it is stable, but when the weight shifts on a curve, the truck becomes unstable and may roll.
Handling curves

When you go around a curve, inertia tries to keep your vehicle going in a straight line, while traction tries to keep your tires sticking to the curved pavement. The faster you travel, the more pressure is exerted on the outside front tire. If you are going too fast, inertia will cause your vehicle to go off the road. If you brake, your vehicle may skid. The problem is increased if the road is slippery or uneven. The best practice is to slow down before the curve and avoid braking in it.

If you do start to lose traction in a curve, don’t brake. Ease off the accelerator and re-apply gently when you regain traction.

Before you enter a curve, slow down to a speed that will allow you to go through the curve without using your brakes. When you reach the middle, begin to straighten your wheels and accelerate to help you leave the curve.

Gear use

If you’re driving a vehicle with a standard transmission, you need to be able to choose the appropriate gear and shift smoothly. You need practice to coordinate the clutch, accelerator and gearshift.

It is illegal to coast downhill in neutral or with the clutch in. You need to be in gear to safely control your vehicle.

Steering

You in the driver’s seat

You’re about to make a left turn at a major intersection. You’re a bit nervous because you haven’t been driving long. You see a gap in the oncoming traffic, so you let your eyes guide you as you steer in a smooth arc, ending up in the correct lane.

Steering, like any skill, takes practice. Practice will help you coordinate your hands and your eyes so that you can drive in a straight line or a smooth arc. The two main principles of good steering are controlling the wheel and maintaining good road position.
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Controlling the wheel

Keep both hands on the outside of the wheel. If you drive with your hands inside the wheel, your hands could be injured in a crash. You may sometimes have to steer with only one hand when you are changing gears or using a dashboard control, but try to use both hands when possible. This gives you better control, and also shortens your response time when you see a hazard.

Where should you put your hands? Imagine that your steering wheel is a clock. Put your hands at an equal height at the 9 o’clock and 3 o’clock position, or the 10 o’clock and 2 o’clock position, whichever is most comfortable. If there is an airbag in the steering wheel, the 9 o’clock and 3 o’clock or even an 8 o’clock and 4 o’clock position may be better than 10 o’clock and 2 o’clock. This is because your hands could hit your face if the airbag goes off when they are in the 10 o’clock and 2 o’clock position.

Keeping good road position

Steer the vehicle in a smooth line so there is little side-to-side movement when you’re driving. The best way to do this is to look well ahead in the direction you want to go. Your peripheral vision will help you centre your vehicle and keep you moving in a straight line. When you turn, look well ahead in the direction you are turning. This will help you turn in a smooth arc.

Space margins

You in the driver’s seat

You’re driving behind someone who is travelling at 30 km/h in a 50 km/h zone. You wouldn’t mind so much, but you’re already late for an appointment. There’s no chance to pass on this residential street. You think it might be a good idea to pull up closer behind the driver to get them to hurry up.

Tailgating (following too closely behind the vehicle in front) is a major cause of crashes. If you tailgate, the vehicle in front can block your view of hazards ahead. Worse, if the vehicle stops suddenly, you have no time to slow down and stop safely. If you rear-end the other driver, you will be held responsible for the crash.

Stopping

Stopping your vehicle is more than just pressing on the brake pedal.
Total stopping distance is the distance your vehicle will travel from the moment you:

**see** — a hazard
**think** — decide to stop
**do** — place your foot on the brake pedal until you stop.

When you see a problem ahead while you’re driving, it will take you about three-quarters of a second to **see-think** and another three-quarters of a second of **do**. Only then will your vehicle begin to slow down.

This is why it is so important to allow enough space in front.

**Space in front — the two-second rule**

Always leave a safe following distance between your vehicle and the vehicle in front. You need at least two seconds of space in front in good weather and road conditions. Increase your following distance to three seconds on high-speed roads and to four seconds in bad weather conditions or on uneven or slippery roads.

Allow at least three seconds following distance when you’re behind a large vehicle that could block your vision, or a motorcycle that could stop very quickly. It’s also a good idea to keep at least a three-second following distance if a vehicle is following close behind you, or when you are following another vehicle on an unpaved road where dust or gravel may be in the air.

On a highway, measure a three-second space by picking an object ahead that will not move. When the vehicle in front of you passes that object, begin your count: one thousand and one, one thousand and two, one thousand and three.

If you reach the object as you say “three” you are keeping a three-second following distance.
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**Total stopping distance**

Is the distance your vehicle will travel from the moment you notice a hazard until the moment your vehicle stops. You need time to see, think and do before your brakes even begin to slow your vehicle. Braking distance depends on your speed, your vehicle and road conditions. Always allow enough following distance.

**warning!**

If you are turning left off a highway onto a driveway or side road, watch your mirrors and make sure you have plenty of space behind. The cars behind may not be prepared to slow down for you.

**driving tip**

By looking ahead, keeping good space margins and anticipating road hazards, you can avoid sudden stops and changes in speed. These safe driving habits also save fuel.

Try to leave yourself an escape route when you are driving on a multi-lane highway. Then, if something happens in front, you can pull into another lane to avoid trouble.

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**Space behind**

What do you do when someone is tailgating you? You can’t control the space behind you in the same way as the space in front. But it’s a good idea to slow down slightly to increase your space in front. This way, if you have to stop, you can stop more gradually and there will be less chance of the person behind crashing into you. Other options are to move into another lane or to pull over to the side and let the tailgater pass.

**Space beside**

Keep at least one metre of clear space on each side of your vehicle while you’re driving. When you’re passing pedestrians, cyclists or other vehicles, allow as much room as possible — at least one metre, and more if you are going at a faster speed. Increase your side space margins even more when visibility or road conditions are poor.

**Lane position**

When you’re deciding where to position your vehicle in the lane, there are several things to consider:

- on a two-lane road, stay fairly close to the centre line so other vehicles do not move into your lane space
- in the curb lane, stay well away from hazards on the side, such as car doors that might open
- in most lanes, drive near the centre of the lane
- avoid driving in other drivers’ blind spots.

On a multi-lane road, the right lane is often the safest one to choose. It keeps you away from oncoming traffic and it’s less likely that another driver will tailgate you.
Choosing a safe gap

You in the driver’s seat

You’re waiting at a stop sign. The traffic seems endless. Just when you think it’s safe to cross the intersection, another car comes into view.

What would you do?

The space you need to get across an intersection safely or to merge into a line of traffic is called a gap. Deciding on whether a gap is big enough to be safe isn’t always easy. You need to consider several things:

• the speed of the traffic
• the time it will take to do your manoeuvre
• the time it will take your vehicle to accelerate to the speed of the traffic flow.

Be careful not to underestimate the speed of approaching motorcycles or bicycles. They are often travelling much faster than they appear to be.

Driving tip

Did you know that, in ideal conditions, it takes most vehicles stopped at an intersection about:

• two seconds per lane to go straight across
• five seconds to turn right and get up to 50 km/h
• seven seconds to turn left and get up to 50 km/h (allow extra time if you need to cross several lanes).

Remember to add an extra two seconds for safety.

The driver of the blue car and the driver of the station wagon may have a problem if either of them moves out of correct lane position when they are turning. In this situation, time your turn so you won’t have a space conflict with the other driver. If there’s any doubt about who should go first, the driver making the left turn should yield.
Communication

You in the driver’s seat

Your car is at a stop sign and you’re waiting to cross the intersection. The intersection is clear except for a car approaching from the left. Its right turn signal is on. If this car turns right before it reaches you, you can safely cross the intersection right now. But the driver isn’t slowing down, and they’re not pulling over to the right.

What would you do?

Is the driver of the grey car really going to turn right?

In this scene, the other driver is confusing you by giving mixed messages. Their turn signal indicates that they’re planning to turn, but the lane position and speed of their vehicle suggest they’re planning on going straight. In this situation, it is better to wait and see what they do before crossing the intersection.

Sharing the road safely means understanding the tools of communication and using them effectively.

Turn signals

Your primary communication tools are your turn signals. Always use your turn signal to let people know you are planning to turn, change lanes, pull out or pull over.

When you use your turn signal:

- **be timely** — signal well ahead to give other road users plenty of warning.
- **be clear** — don’t apply your turn signal too soon and confuse other people. If you plan to turn right at the next intersection and there are a number of driveways and lanes before you reach the intersection, wait until you are close enough that people can see exactly where you are planning to turn.
mean what you say — your turn signal is designed to switch off after you have made a turn, but sometimes it doesn’t. Make sure that your signal has cancelled after you turn so it doesn’t give the wrong message.

There are times when an automatic turn signal is hard to see — for example, if you’re pulling out from a line of parked vehicles. In these situations, use a hand signal in addition to the turn signal.

Signalling a left turn.

Signalling a right turn. Cyclists may use either of these hand signals.

Signalling a stop.

Lights

Your vehicle has different types of lights to help you see and be seen. The lights that you use most for communication are brake lights, backup lights and hazard lights.

Brake lights — these are visible when the brake is applied. When you see these lights on the car ahead, you know the driver is slowing down and perhaps planning to stop. Let others know you intend to slow down or stop by tapping lightly on your brake. This will activate the brake lights.

Backup lights — these show that the vehicle is in reverse, and the driver is backing up or intends to back up.

driving tip

Watch for backup lights when you are driving in a parking lot. Not only do they warn you that you need to slow down, they also tell you where you might find a parking space.
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**Fog Lights**—fog lamps should only be used in place of, or with, headlamps if atmospheric conditions (fog) make the use of headlamps disadvantageous.

**Hazard lights**—these let people know you have stopped for an emergency. Truck drivers also use them to warn that they are travelling well below the speed limit.

**Horn**

The horn is a useful communication tool if it's used properly. For example, if you see someone start to pull out of a driveway without looking, a light tap on the horn will let the other driver know you’re there. Only use the horn when it gives a useful signal to other drivers and helps prevent a crash.

**Eye contact**

You can often communicate with other road users just by using your eyes. When you stop for pedestrians, make eye contact so they know you have seen them and it is safe for them to cross. Do the same for other drivers, motorcycle riders and cyclists when you are stopped at an intersection.

**Body language**

Waving your hand to let another driver proceed, or a pedestrian cross in front of you, is generally not a good idea. The other driver or pedestrian may face hazards you can’t see.

**Vehicle language**

You can tell a lot about what a driver is going to do by watching “vehicle language.” If a vehicle moves over in the lane, the driver may be planning to change lanes or turn. If the vehicle slows down when approaching a corner, the driver may be...
planning to turn. When you see a parked vehicle with its wheels turned out, the driver may be planning to pull out into traffic.

**Using see-think-do**

Research shows that new drivers often panic and even freeze in an emergency. You can avoid this by giving yourself plenty of time and space to react, and practise using the see-think-do strategy. If you are driving at a safe speed, looking well ahead, and keeping alert and focused, you should have time to see problems coming up, think of possible solutions and take actions that will help keep you safe.