Hazard perception

Revision of hazard perception skills

Figure 1

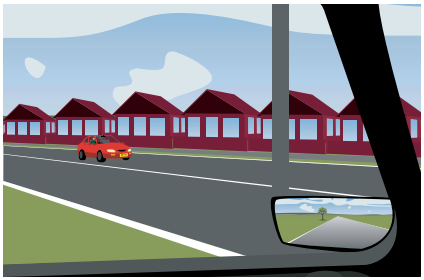


Figure 2

Figure 3

As a driver with about three years or more solo driving experience, you have already developed some hazard perception skills. To get to a P2 licence you had to pass the Hazard Perception Test (HPT) and demonstrate that you had some basic hazard perception skills. When you graduate to a full licence you will leave behind all the P driver restrictions. For this reason it is important that you fully understand what hazard perception skills are and how to apply them. A bit of revision will not only help you pass the DQT, but become a lower risk driver when you shed your P plates for good.

You should remember that the basic hazard perception skills are:

- Keeping a safe distance from other vehicles. (Figure 1)
- Selecting safe gaps when turning, crossing traffic or changing lanes. (Figure 2)
- Scanning for hazards ahead, behind and to the side. (Figure 3)

Part 3 of the handbook provides revision of hazard perception skills and their application.

If you feel you need to brush up on hazard perception skills in more detail (eg if you haven't been driving much in the last two years), you should re-read the Hazard perception handbook and visit the HPT section of the RTA website (www.rta.nsw.gov.au/hpt.htm). Remember also that practice on the road is essential to the development and maintenance of sound hazard perception skills.

The HPT section of the RTA website also has links to other RTA materials and publications that may help you. For example, if you are a bit rusty on the road rules, you might like to visit the RTA website (www.rta.nsw.gov.au) and the *Road User's Handbook* for some revision.

FURTHER DEVELOPMENT OF HAZARD PERCEPTION AND RELATED SKILLS

Apart from revision of basic hazard perception skills, Part 3 will help you to develop these skills further and to help manage your crash risk.

CROSS REFERENCING TO THE DQT SECTION OF RTA WEBSITE

Throughout Part 3 there are cross-references to the RTA website (www.rta.nsw.gov.au/dqt.htm). If you have access to the web, you should visit the website to help you learn about hazard perception skills and how to apply them. So use this book and the RTA website together to help you develop and practice the advanced hazard perception skills needed to be a safe driver and to help you prepare for the DQT.

www.rta.nsw.gov.au/dqt.htm

KEY POINTS SUMMARY: REVISION OF BASIC HAZARD PERCEPTIONS SKILLS

The three basic hazard perception skills are:

- Keeping a safe distance from other vehicles.
- Selecting safe gaps when turning, crossing traffic or changing lanes.
- Scanning for hazards ahead, behind and to the side.

Keeping a safe distance from other vehicles: revision

THE 'SPACE CUSHION' CONCEPT

The more space that you have between your car and other vehicles the more time you have to detect and respond to hazards that might arise when driving.

To stay safe, you need to manage the space around your car to the front, sides and to the rear. The best way to do this is to imagine an invisible 'space cushion' around your car as shown in the picture.

As you drive down the road, this cushion needs to be maintained by adjusting your speed or position on the road. For example, if the vehicle ahead slows down, you will need to slow down too.

You may also wish to visit the HPT section of the RTA website (www.rta.nsw.gov.au/hpt.htm) for an interactive demonstration of safe following distances.

MAINTAINING A 'SPACE CUSHION' TO THE FRONT

Managing the space to the front of your vehicle is the most important part of the 'space cushion' for all drivers. Remember more than a third of new full licence driver crashes involve running into the back of another vehicle (see section entitled **'Five most common crash types for new full licence holders'**, section 1 of this handbook under **'Crash patterns for Provisional and full licence holders in NSW'**).

Maintaining a 'space cushion' to the front also gives you more time to spot other hazards that may arise.

To maintain an adequate 'space cushion' to the front you need to:

- Control your speed to suit the road and traffic conditions.
- Keep a safe following distance between your car and the vehicle in front.

These topic areas are revised briefly in the following paragraphs. Some new information on the risks of speeding is also covered, together with some important new information on following distances.

Controlling your speed: Revision and some new information

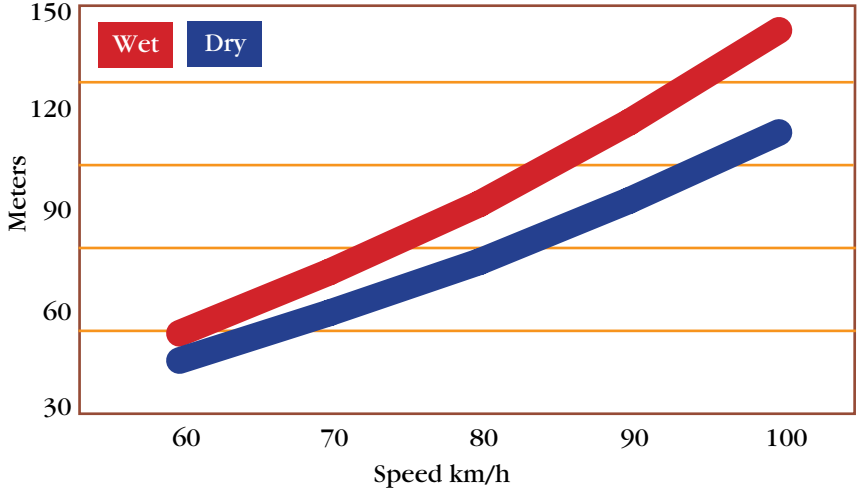
Speed limits range mainly between 40 km/h and 110 km/h across NSW. Speed limit signs show the maximum speed permitted on a particular road. A slower speed may be safer. As traffic and road conditions change, smart drivers adjust their speed to suit these conditions.

Even after about three years of driving, you may think that exceeding the speed limit is OK. Many drivers seem to do it and some get caught by the police. Speed is a factor in about 40 per cent of fatal crashes in NSW.

PROBLEMS WITH SPEED

Speeding cuts down the time that you have to detect and respond to hazards that might come up in the traffic ahead. For example, if you travel at 70 km/h in a 60 km/h zone your car will need 30 per cent more distance to brake to a stop than the other cars travelling at the 60 km/h speed limit. So even 10 km/h can make a big difference. It can mean the difference between hitting another vehicle, a pedestrian or a cyclist and being able to stop in time.

The graph below shows the distance that you travel at different speeds and the distance that you need to brake to a complete stop. The faster you go, the more distance you need to stop. You need even more distance when the road is wet.

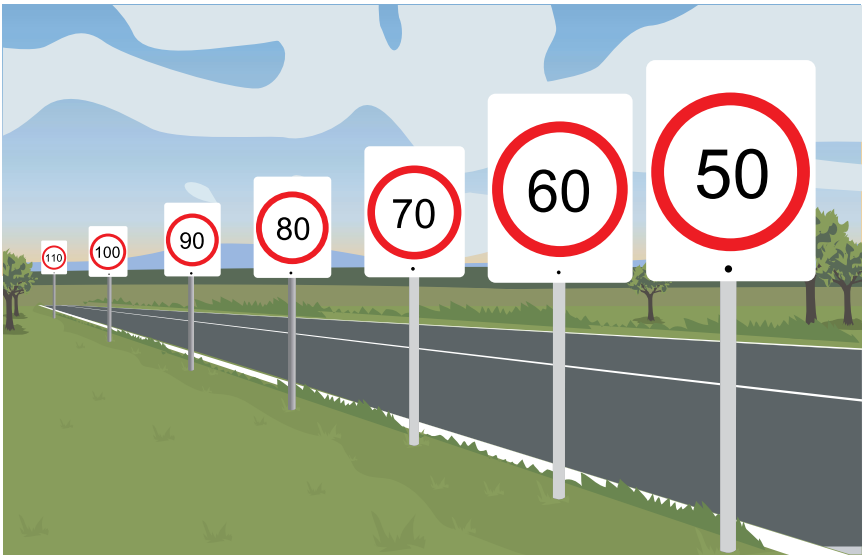


Source (15)

Remember, it takes about:

- Three-quarters of a second to see a hazard and make a decision (eg brake or don't brake) and
- Another three-quarters of a second to get your foot from the accelerator to the brake.

This means that 1.5 seconds have passed before you even start braking! At 60 km/h you will have travelled about 25 metres in this time – half the length of an Olympic swimming pool.



HOW SPEED INFLUENCES WHAT YOU CAN SEE WHEN DRIVING

You should have worked out by now that the faster you drive, the less time you have to detect and respond to hazards. But, did you know that the faster you drive the narrower your field of vision becomes (what you can see without moving your eyes or head)?

The picture following shows how your visual field narrows as you drive faster.

Source (16)

THE NARROWING VIEW FROM THE DRIVER'S SEAT

Sitting in the driving seat of a stationary car, most drivers have about a 180 degree field of vision. However, once you start moving, this field narrows. The faster you drive, the narrower it gets. At 100 km/h it has narrowed to only 50 degrees – less than one third of what you could see when you were stationary!

This narrowing of the visual field occurs because our eyes and brain can't keep up with the rapidly changing images in our peripheral vision (what we see out of the corners of our eyes to the left and right). You can experience this as a passenger when you look straight out of the side window of a car or a train. Everything seems to rush by quickly or to blur. You can't easily focus on any object.

The faster you drive, the more your vision becomes concentrated on a narrowing band immediately in front of the vehicle which doesn't appear to be blurred or to be moving quickly. The pictures show what your field of view would look like from the driver's seat when stationary and at 100 km/h. Look how much less your field of vision is and how much you can't see to the left and right on the road ahead. You could easily miss seeing the cyclist.

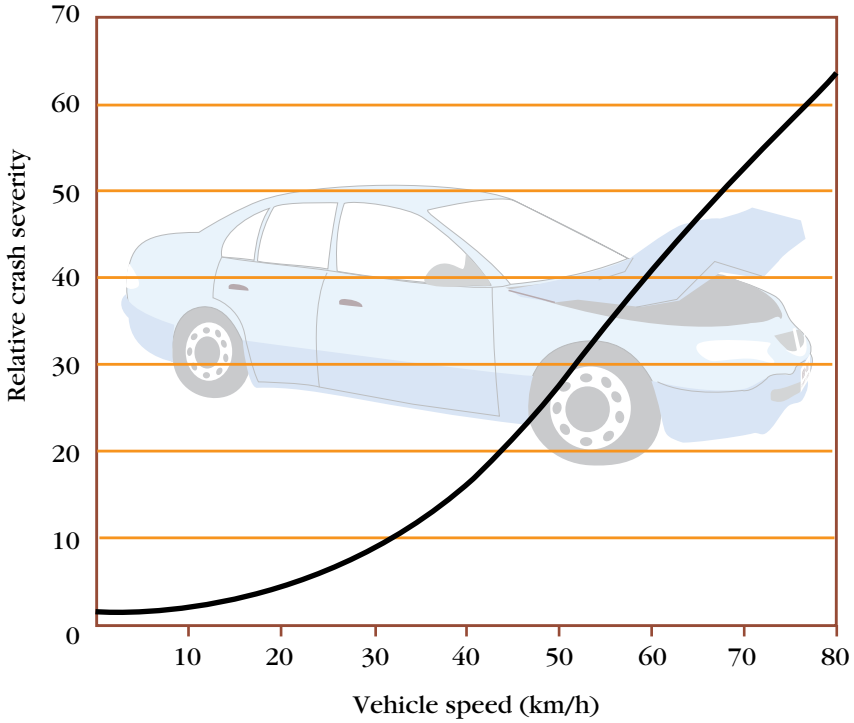
To help compensate for this narrowing field of vision at higher speeds, like 100 km/h, you need to scan more to the left and right. This means moving your eyes or head to spot hazards ahead. Doing this may help detect hazards to the left or right. You shouldn't over do it though! Scanning to the left and right can take your attention away from the road immediately ahead and increase the risk of colliding with other vehicles or road users.

Even a one second glance to the left or right at 100 km/h means that your vehicle has travelled 28 metres while you were not looking at the road ahead. The important skill is being able to increase your scanning enough so you can detect hazards away

from the centre of the road, but not so much that you might miss hazards directly in front of you.

Higher speed limits are used on roads where having a narrow field of vision is not too serious. Roads in 100 km/h zones tend to be wider, are sometimes divided by median strips and have fewer cross intersections and less pedestrian or commercial roadside activity. Freeways zoned at 110 km/h have no cross intersections, are divided and have multiple lanes. This helps compensate for the narrowing of drivers' fields of vision by reducing the potential for hazards from the left or right.

However, you don't need to be in a 100 km/h zone to be at greater risk. Because your field of vision is reduced by more than 50 per cent at even 60 km/h, detecting hazards in busy urban areas and in lower speed zones can be difficult. You may need to increase your scanning when driving in urban areas. Exceeding the speed limit also increases your risk of not detecting hazards and perhaps having a crash or getting booked by police.



Source (17)

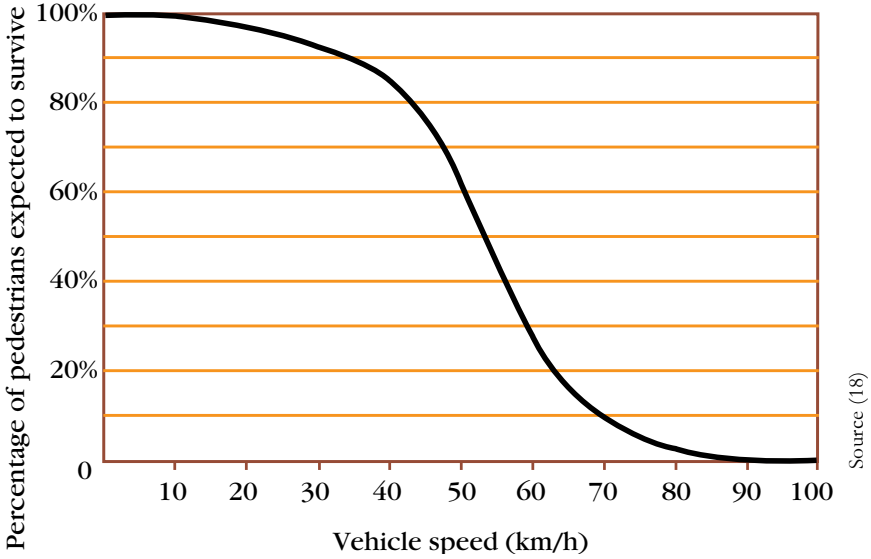
SPEEDING AND CRASH SEVERITY

The faster you drive, the harder you hit.

All that speed energy has to go somewhere. Speeding also adds to the severity of any crash that you might be involved in. The previous graph shows that as your speed doubles the severity of a crash increases fourfold. So a crash at 80 km/h is four times as severe as one at 40 km/h.

But you might not be the person that is killed or injured in a crash. For example, if you hit a pedestrian at 60 km/h they have more than a 70 per cent probability of dying. The graph below shows this clearly. At a collision speed of 80 km/h a pedestrian has almost no chance of survival.

More than 3,000 pedestrians are injured or killed on NSW roads each year. Controlling your speed could help reduce this number.



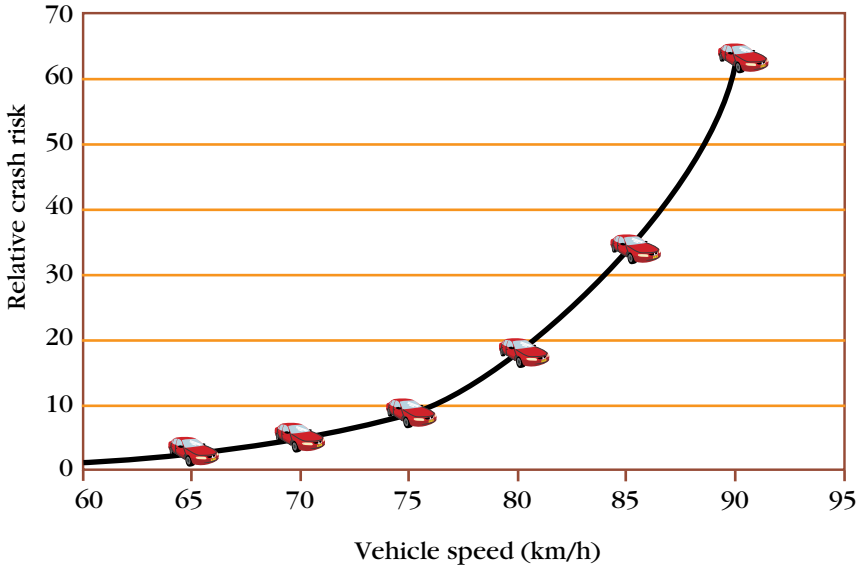
Source (18)

SPEEDING AND THE RISK OF CRASHING

The more you exceed the speed limit, the greater your risk of crashing. The following graph shows this relationship. For example, in a 60 km/h zone, research shows that your risk of crashing doubles for every 5 km/h that you exceed the 60 km/h limit.

This is why any speeding is dangerous for you and other road users and why police target speeding on NSW roads.

Speeding therefore increases your chances of crashing, your chances of death or serious injury. It also increases the chance that you will kill or injure other road users.

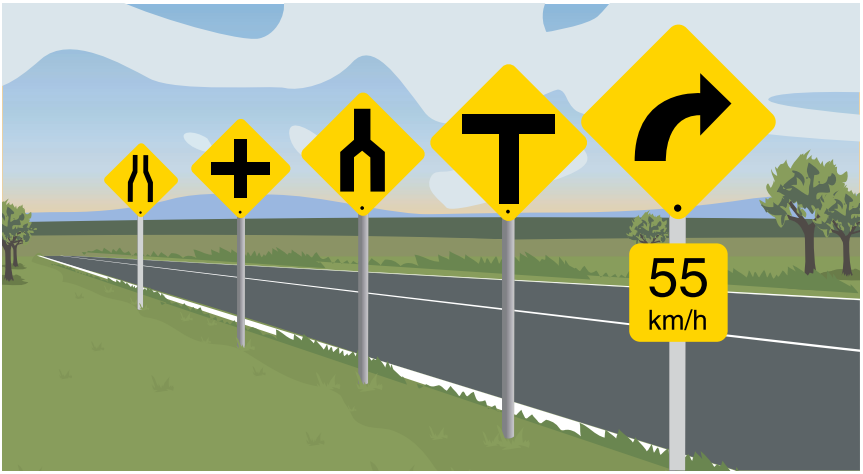


Source (17)

REDUCING THE RISK OF SPEED-RELATED CRASHES

Speed-related crashes can be avoided if you control your speed and give yourself enough time to scan ahead for hazards and enough time and space to do something about them. The advice is simple:

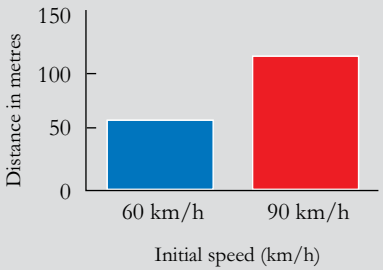
- Drive within the speed limits.
- Slow down before entering curves or bends – braking in a curve can be dangerous.
- Look for and take note of warning signs indicating curves or other hazards ahead and slow down **before** you get to them.
- Slow to the speed recommended (or lower than that shown) on the warning signs.
- If the weather is bad or the visibility is poor slow to a speed where you can pull up quickly should a hazard emerge.



Warning signs like the ones shown in the picture are there to help you manage your speed. They alert you to possible hazards ahead. However, they will not help you if you are travelling too fast to detect them or to prepare for the hazards indicated.

Controlling your speed is largely your responsibility.

Sticking to the speed limits and adjusting your speed to suit the conditions will help ensure that you avoid a crash, speeding fines or losing your licence through demerit points.



Source (15)

Stopping distance.

KEY POINTS SUMMARY: CONTROLLING YOUR SPEED

- The faster you drive the narrower your field of vision (what you can see without moving your eyes or head).
- Even at 60 km/h your field of vision is less than half of what it is when your stationary – at 100 km/h it is less than a third.
- Reducing speed, more frequent scanning and increasing your 'space cushion' can help reduce crash-risk.
- Speeding increases your chances of crashing.
- Speeding increases your chances of being killed or seriously injured.
- Speeding increases the chances of killing or injuring other road users.
- To reduce your risk, obey speed limits and adjust your speed to suit the conditions.

Tips

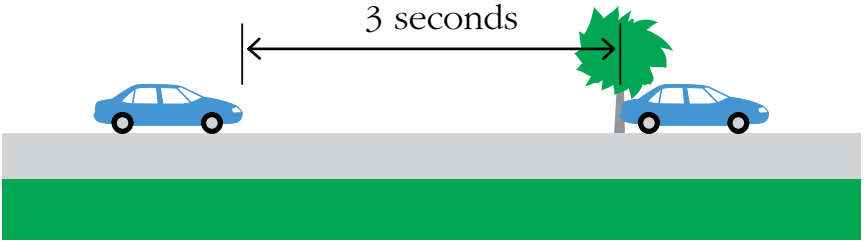
1. You might like to visit the DQT section of the RTA website (www.rta.nsw.gov.au/dqt.htm) to learn more about speed and your field of vision in an interactive environment.
2. When you are approaching a place where hazards are likely and you may need to slow or stop quickly (eg pedestrian crossings or strip shopping centres), take your foot off the accelerator and 'cover' the brake. This means that your foot is over the brake pedal but not activating it. This lets you brake very quickly if you need to.

Keeping a safe following distance: Revision

To reduce your crash risk, you must increase the following distance between you and the vehicle ahead as you increase speed. If you don't do this you may crash into the back of the vehicle ahead if it has to stop quickly. This type of crash happens to a lot of NSW drivers each year. As noted in the section entitled **'Crash patterns for provisional and full licence holders in NSW'** in section 1 of this handbook, this is the most common type of crash for full licence holders.

The distance that it will take you to stop your car depends on the speed at which you are travelling. The faster you go, the longer the stopping distance. For example as shown in the previous diagram, you need **twice** the distance to stop from 90 km/h compared with stopping from 60 km/h, even in the best possible driving conditions – that is, on a sealed, dry road.

There's an easy way to avoid rear end crashes – use the 'three-second rule'.



THE 'THREE-SECOND RULE': REVISION

This simple rule applies at any speed and is easy to use. You should have come across it before (eg in the *Hazard perception handbook*), but here it is again.

All you need to do when driving is watch the vehicle in front of you pass an object at the side of the road such as a power pole, tree or sign. As it passes the object, start counting '1001, 1002, 1003'.

If you pass the object you picked out before you finish saying all the numbers, you are following too closely. Slow down, pick another roadside object and repeat the numbers again to make sure that you have increased your following distance enough.

What's good about the 'three-second rule' is that it helps you keep a safe following distance at any speed. Using the 'three-second rule' gives you a bigger following distance the faster you drive. This is what a three-second following distance looks like at 60 km/h.

Generally speaking, you should allow more than a three-second following distance in rain, fog and on icy roads. You should also use a longer following distance at night because it's harder to judge distances and spot hazards when driving in the dark. This is what a four-second following distance would look like at 60 km/h:

These distances can seem large, especially compared with the gaps other drivers leave in front of them. This might tell you something about why rear-end crashes are so common for experienced drivers. You can remind yourself that the large gap you are leaving in front of you helps to make you a more skillful and safer driver than many others.

KEY POINTS SUMMARY: KEEPING A SAFE FOLLOWING DISTANCE

- The faster you drive, the longer the distance you need to stop.
- Use the 'three-second rule' to keep a safe distance – increase this to four-seconds or more when it is dark, wet, foggy or icy.
- Scan well ahead – look through the windows of the vehicles ahead and watch for brake lights coming on two, three or more vehicles ahead.

Tips

You may find it is difficult to keep a 3 second following distance in heavy traffic – other drivers may move into the gap that you leave. This can be annoying, but try to maintain a 3 second following distance anyway.

Keeping a safe distance to the side and rear: Revision

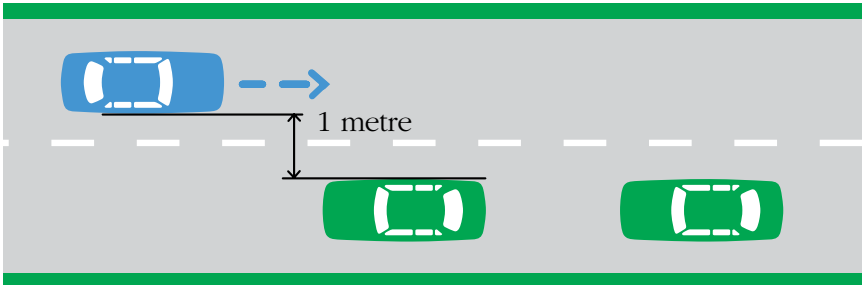
Maintaining a 'space cushion' around your car helps keep a safe distance between you and other road users to your right, left and rear.

This space gives you some room to move should you have to brake or change direction. This may be enough to avoid a collision if a hazard arises.

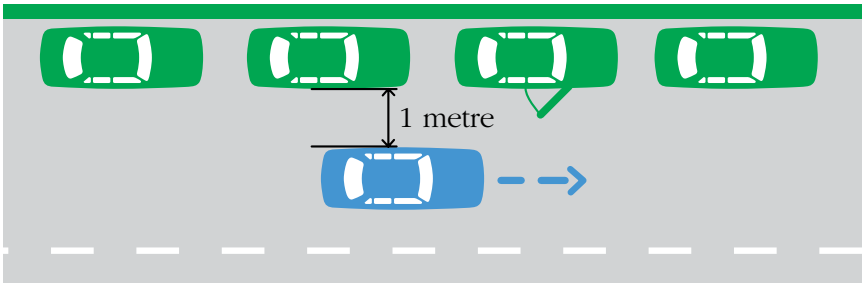
A 'SPACE CUSHION' TO THE LEFT AND RIGHT

Try to keep at least one metre between your vehicle and other moving or parked vehicles. This is particularly important when driving beside parked cars as someone might open a car door in front of you. It is also important when passing or overtaking other vehicles and when other vehicles travelling in the opposite direction pass you on narrow roads.

A space cushion to the left or right of your car also makes it safer for vulnerable road users. For example, it allows cyclists some room to move and reduces the chances of colliding with them.



You must allow clearance from oncoming traffic.



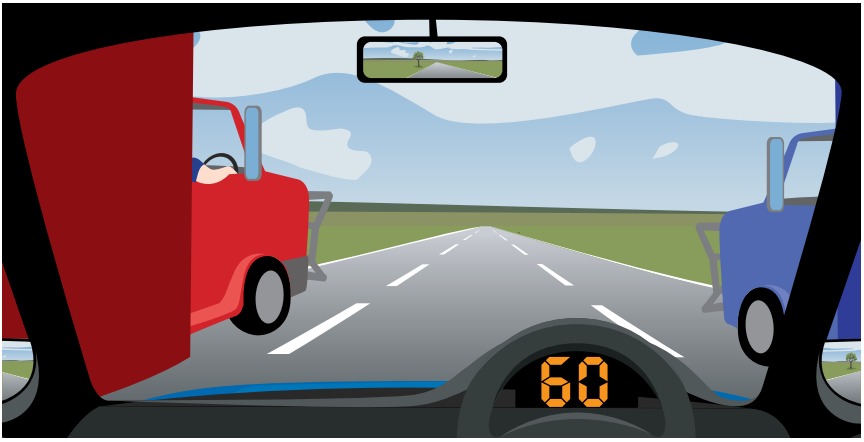
You must allow space for parked cars to open doors.

TRAVELLING NEXT TO OTHER VEHICLES

On a multi-laned road you should try not to travel with a vehicle to your left and right as shown in the picture below. You have no room to move right or left should a hazard appear in front of you. Try to keep some space in the lane beside you so that you have a chance to steer around a hazard rather than being forced to brake hard to avoid hitting it.

As shown in the picture, driving between two vehicles, especially trucks, also blocks your vision. This may prevent you from seeing a hazard to the left or right until it is too late (eg a car entering from a side road).

On multi-laned roads or freeways when the traffic is heavy it will be harder to avoid travelling next to other vehicles. Fortunately, the traffic is usually travelling more slowly in such circumstances, so braking is often easier and less dangerous than at higher speeds.



KEEPING SAFE DISTANCE TO THE REAR

Maintaining a 'safety cushion' behind you is difficult as it is the other driver who has most control of the space between your vehicle and theirs. If the vehicle behind you is following too closely, slow down slightly to increase the space ahead of you. This means that if you spot a hazard in front of you and need to brake, you can do this gradually and the vehicle behind has more time to stop. While tailgaters are annoying, you don't want one to run into your vehicle if you can help it.

KEY POINTS SUMMARY: KEEPING A SAFE DISTANCE TO THE SIDES AND REAR

- Try to keep at least a one metre 'space cushion' between you and vehicles to your left and right.
- Avoid travelling next to other vehicles if you can – especially large vehicles like trucks and buses.
- Give pedestrians, cyclists and motorcyclists plenty of room.
- It is difficult to maintain a 'space cushion' behind your vehicle as the other driver controls the space.
- If the vehicle behind is travelling too closely, slow down slightly to increase the 'space cushion' in front of your vehicle.

Tips

1. You might like to visit the HPT section of the RTA website (www.rta.nsw.gov.au/hpt.htm) to help you with revision on safe following distances in a more interactive environment.
2. You will find a more advanced interactive exercise on following distances and avoiding collisions at the DQT section of the RTA website.

Selecting safe gaps: Revision

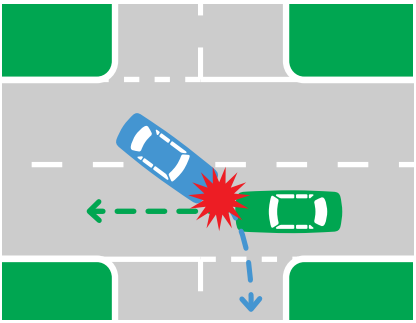
WHAT IS A SAFE GAP?

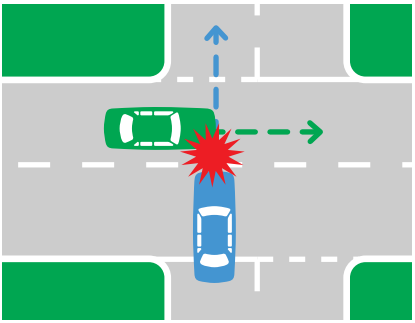
A safe gap is one that allows you to turn, overtake or cross an intersection without being involved in a collision or endangering other road users. This means that no other road users should need to take evasive action to avoid your vehicle. For example, if you make a left turn from a side street onto a main road and the traffic on the main road has to brake heavily or change lanes to avoid colliding with you, the gap was not safe.

If a gap is not large enough, it is unsafe and you should not go. Remember, good hazard perception is as much about recognising when to stay as when to go. As noted in section 1 entitled, **'How the Driver Qualification Test works'**, Part 2 of the test may present you with some situations where it is not safe to turn, overtake or cross an intersection. It is therefore important to recognise safe and unsafe gaps in traffic.

IMPORTANCE OF SAFE GAP SELECTION

Selecting safe gaps in traffic when turning, crossing traffic, overtaking or changing lanes is a key hazard perception skill for all drivers. About one third of crashes involving first year full licence holders happen when the driver selects a gap that is too small and collides with another vehicle. Gap selection is particularly important at intersections.





KEY POINTS SUMMARY: SELECTING SAFE GAPS: REVISION

- A gap is safe where you can turn, overtake, change lanes or cross an intersection:
  – Without being involved in a crash.
  – Without endangering other road users.
  – Without other road users having to take action to avoid your vehicle.
- If a gap is not large enough, don't go – wait until it is safe.

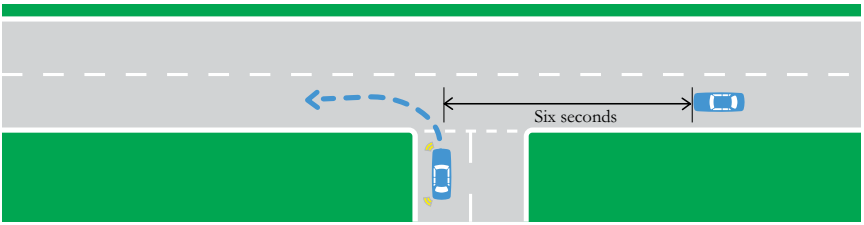
Tips

1. You might like to visit the HPT section of the RTA website (www.rta.nsw.gov.au/hpt.htm) to revise selecting safe gaps concepts in a more interactive environment.
2. If you think your gap selection skills are good, try the interactive exercises in the DQT section of the RTA website at www.rta.nsw.gov.au/dqt.htm.

Selecting safe gaps when turning: Revision

Making turns is often difficult, particularly when the traffic is heavy. You may need to watch for traffic and other road users such as pedestrians to the front, left and right. The key hazard perception skill, however, is selecting a gap that is big enough for you to complete the turn safely.

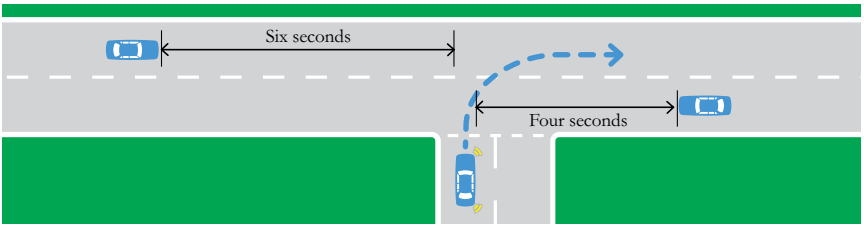
For example, if you are turning left in a 60 km/h zone you will need a gap of about six seconds between your car and vehicles approaching from the right. This assumes that the traffic is travelling at 60 km/h – it may actually be faster.



Choose a safe gap so other vehicles are not forced to change speed.

Remember, a six-second gap means that you could count '1001' through to '1006' before a vehicle from the right would be level with your car. Of course, you need to judge what this distance looks like as you can't use this counting tool as you are making a left hand turn.

If you are turning right in a 60 km/h zone you will need a gap of at least four seconds between your car and vehicles approaching from the right, but a gap of at least six seconds from the left. This assumes that the traffic is travelling at 60 km/h – it may actually be faster – and that there is no on-coming traffic.



Choose a safe gap so other vehicles are not forced to change speed.

TURNING RIGHT AT TRAFFIC LIGHTS

Making a right turn at traffic lights is simpler than at an uncontrolled intersection (ie one without traffic lights, 'stop' signs or 'give way' signs).

If you are turning right at traffic lights in a 60 km/h zone you will need a gap of at least four seconds between your car and approaching vehicles. Again, this assumes that the approaching traffic is actually travelling at 60 km/h – it may actually be faster.

The picture below shows what a four second gap would look like from a driver's eye view.

TURNING RIGHT AT A CROSS INTERSECTION

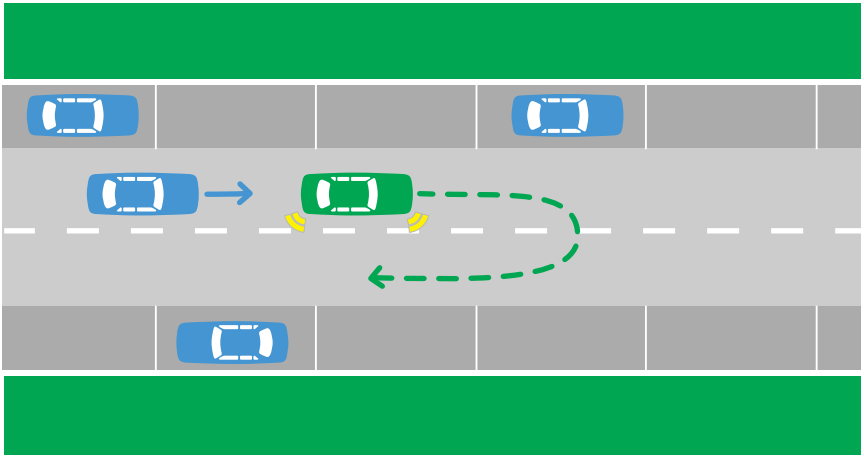
Turning right at a cross intersection (ie one with four directions) with oncoming traffic and traffic from the right and left, your task will be harder. You will need to look three ways to judge a safe gap – to the front and the left and right. You are also likely to be facing a 'stop' or 'give way' sign.

In this situation you need at least a four second gap to the right, at least a six second gap to the left and at least a four second gap to the front.

MAKING U TURNS

U turns are more complicated than right turns as you need to look for traffic approaching from both behind you and in front.

U turns are difficult and potentially dangerous, particularly on busy, high speed roads. Every year more than 800 police-reported crashes involve U turns. They should be avoided unless you have no other choice. An alternative is to do a right turn into a side street, make a three-point turn where it is quieter and safer in the side street, then turn left back on to the road you came from. There is no shame in doing this. Even very experienced drivers do it all the time.



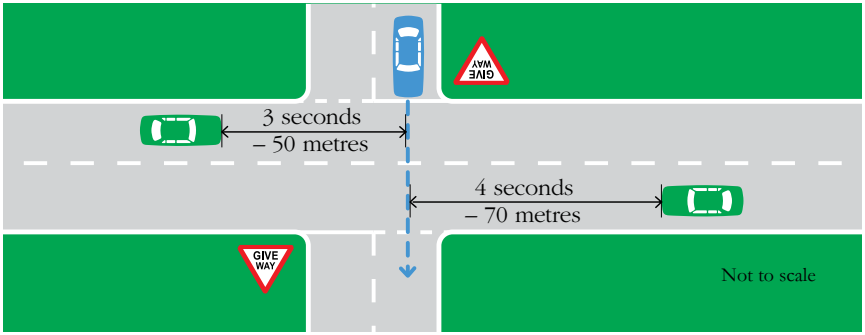
KEY POINTS SUMMARY: SAFE GAPS - TURNING

- When turning left in a 60 km/h zone you need at least a gap of six seconds (about 100 metres) between your car and vehicles approaching from the right.
- When turning right in a 60 km/h zone you need gaps of at least the following:
  – Four seconds to the right (about 70 metres).
  – Six seconds to the left (about 100 metres).
  – Four seconds to the front (about 70 metres) – where there is oncoming traffic.
- Avoid U turns unless you have no other choice.
- If a gap is not large enough, don't go – wait until it is safe.

Selecting safe gaps when crossing intersections: Revision

Crossing intersections can be almost as complicated as making a right turn. You need to look for traffic approaching from the left and right and look out for oncoming traffic that may be turning right. Often you will be facing a 'give way' or 'stop' sign as shown in the following picture. This means that the task can be very demanding, particularly when the road that you are crossing is busy and the traffic is travelling quickly.

From a stationary position it takes at least three seconds to cross a typical intersection on a two-way road. This means that you need **at least** a three-second gap between your car and vehicles approaching from the right. You will also need a bigger gap, at least four seconds, for traffic on your left to allow you to cross the intersection in safety and not cause the cross traffic to brake or swerve to avoid your car. These gaps are illustrated in the picture.



You may need less time to cross the intersection if your car is already moving. This may be the case when you are approaching a 'give way' sign at an intersection and can proceed across without stopping. However, take care. It is difficult to judge your speed and that of other traffic from the left and right. If in any doubt, stop and cross the intersection when you are sure the gap is big enough.

KEY POINTS SUMMARY: SAFE GAPS WHEN CROSSING INTERSECTIONS

- When crossing a typical intersection in a 60 km/h zone, you need gaps of at least the following:
  – Three seconds to the right (about 50 metres).
  – Four seconds to the left (about 70 metres).
- If a gap is not large enough, don't go – wait till it is safe.

Tips

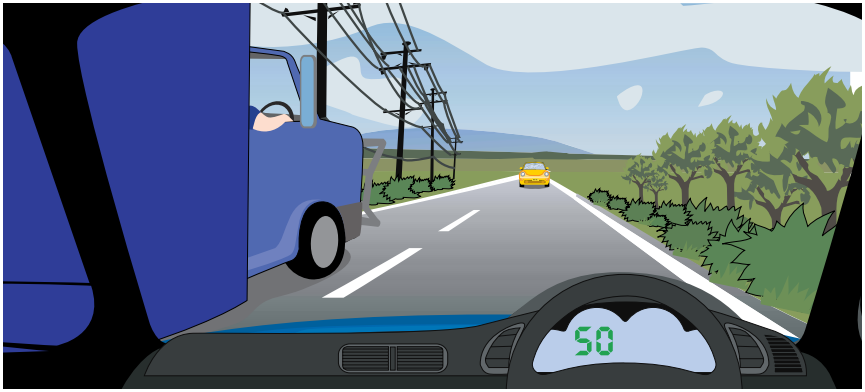
1. You might like to visit the HPT section of the RTA website (www.rta.nsw.gov.au/hpt.htm) to help you with revision on safe gaps in a more interactive environment.
2. You will find more advanced interactive exercises on safe gaps and avoiding collisions in the DQT section of the RTA website (www.rta.nsw.gov.au/dqt.htm).

Selecting safe gaps when overtaking: Revision

Overtaking other vehicles is hazardous. If you misjudge the gap needed to overtake safely you could collide head-on with an on coming vehicle. Head-on crashes are usually very severe as the speed of your car combines with that of the other. For example, a head-on crash where both cars are travelling at only 50 km/h gives a collision speed of 100 km/h – equivalent to driving into a stationary object at 100 km/h!

About 17 per cent of all crashes involving NSW full licence holders are between vehicles from opposing directions. This shows that judging safe gaps in oncoming traffic is always important for drivers.

You also need enough space to avoid colliding with the vehicle that you are overtaking. Selecting safe gaps for overtaking is a key hazard perception skill.



Most of the time overtaking is performed to maintain your chosen speed. However, you sometimes do need to overtake or pass stationary or broken-down vehicles. In these situations you should ensure that you allow a large enough 'space cushion' and that you select a large enough gap in oncoming traffic. Remember, do not exceed the speed limit when overtaking.

On country roads and highways there are often overtaking lanes at regular intervals to allow you to safely overtake. These are signposted well in advance with signs that look like this.

Use these overtaking lanes to pass slower traffic whenever possible. It's safer and avoids the risk of a head-on crash – there's no embarrassment in waiting a kilometre or two before overtaking a slower vehicle.

KEY POINTS SUMMARY: SAFE GAPS WHEN OVERTAKING

- Safe overtaking is difficult – if it doesn't look or feel safe, then don't do it – wait until it is safe.
- Use overtaking lanes on country roads and highways to overtake safely.

Tips

1. You might like to revise overtaking issues in the *Hazard perception handbook*.
2. Before overtaking, check to ensure that someone isn't trying to overtake you.

Scanning for hazards

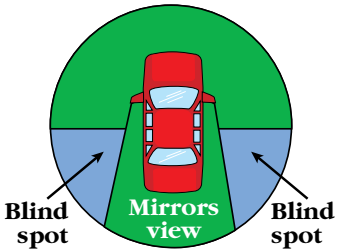
WHAT IS SCANNING?

Scanning means taking in the whole scene 360 degrees around your car. This is a key hazard perception skill that drivers of all experience levels need to use to avoid crashes. You need to scan constantly for hazards when you drive.

Effective scanning means constantly moving your eyes and/or your head when driving so that you can detect hazards that may arise ahead, to the sides and behind your vehicle. You are probably better at scanning than when you first got a P licence, but a little revision may be helpful.

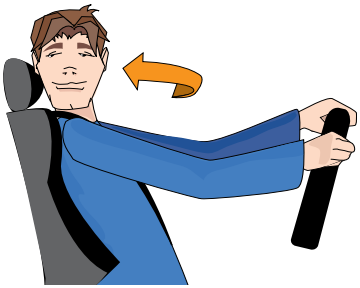
HOW TO SCAN FOR HAZARDS WHEN DRIVING

To scan effectively you will need to move your eyes, your head and perhaps your upper body to get a good view of what is going on right round your car.



The picture above shows that you need a 360 degrees view (a full circle).

This means that you need to look out of the windscreen and the side windows to see what is shaping up ahead and to the sides. You also need to use your mirrors to see what is behind you. But your mirrors can't cover all of the view behind. You always have 'blind spots' – areas not covered by your mirrors. To check your blind spots you will need to turn your head and look out the side windows.



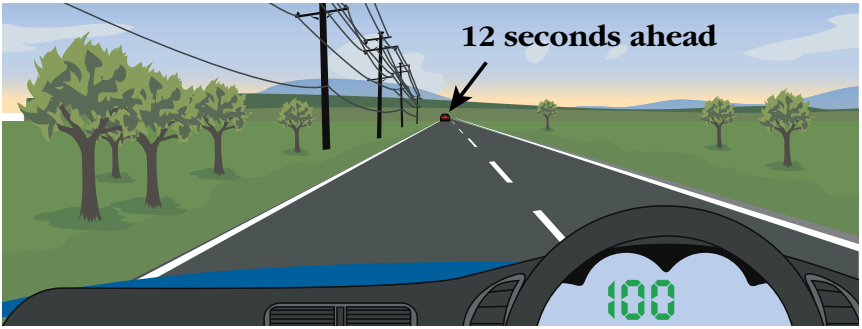
As you have probably noticed by now, blind spots will be different on each vehicle that you drive.

Checking the blind spots with a head check is vital when you want to pull out, change lanes or reverse. A head check (where you look over your shoulder) is illustrated in the picture on the left.

REVISION OF A SCANNING ROUTINE

Experienced drivers constantly scan for hazards when driving. They do it automatically. By now you too should have developed a good scanning routine.

Look up to 12 seconds ahead. In a 60 km/h zone this means looking up to 200 metres ahead. On a freeway at 100 km/h it is up to 500 metres. What this would look like at 100 km/h is shown in the picture. Scan this far ahead to spot hazards. This gives you plenty of time to avoid them.



Scanning far enough ahead may mean looking through the windows of vehicles ahead of you to see what is happening. If you do this you will know in advance if a car ahead is braking as you will see the brake lights come on several cars ahead. This gives you more time to brake if you have to. Good scanning means that you are not just looking at the vehicle immediately in front of you.

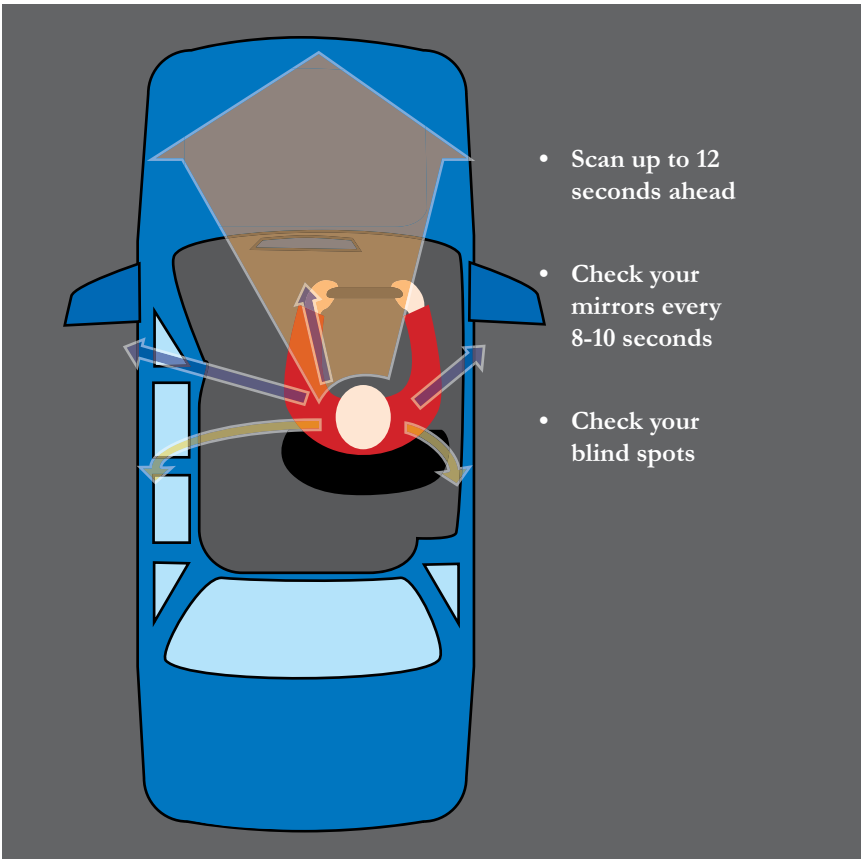
Looking ahead also means scanning from side to side for hazards on the roadside or at intersections. Hazards may be parked cars, cyclists or pedestrians. Effective scanning means constantly moving your eyes and/or your head and not staring at any one spot.

Check your mirrors every 8-10 seconds. Things change behind and beside you when you drive. Unless you check your mirrors you won't know if someone is doing something such as trying to overtake or if there is an emergency vehicle coming up quickly.

Check your blind spots. Scanning ahead and checking your mirrors is usually sufficient only when you are driving along in the same lane without turning or changing lanes. If you need to turn or diverge, right or left, you need to know what is in your blind spots. Head checks enable you to check your blind spots.

SUMMARY OF SCANNING ROUTINE

This scanning routine is summarised in the picture below.



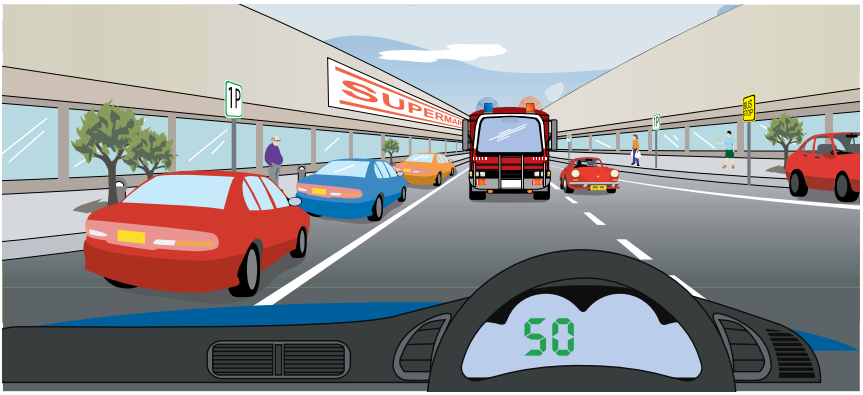
This routine takes about ten seconds to complete. It needs to be constantly repeated as you drive. Of course if you detect a hazard and need to deal with it, this will be your immediate priority. But once this has passed, you need to return to your scanning routine.

SMART SCANNING

When you are scanning, there is a lot to look at and a lot to take in. It would be impossible to look at and attend to everything that you see in detail. You need to be smart about the way you scan for hazards. This means sorting or filtering what is important from everything that is happening. Here are some ways to make your scanning smarter.

LOOK FOR CHANGE

Your vision is designed to spot movement and change, not what stays the same. This means that moving hazards may be easier to spot than stationary ones like road works or parked vehicles. This can be a problem as you can get distracted by a fast moving hazard (eg an ambulance or fire truck coming towards you) and miss a stationary one that may be of more immediate concern (eg a parked truck blocking your lane). You need to look for both moving and stationary hazards.



A HAZARD PERCEPTION ACTION PLAN

Remember, through scanning and hazard perception you are trying to:

- **See** road hazards (eg vehicle waiting to cross the intersection ahead).
- **Think** about what might happen (eg vehicle might move in front of my car).
- **Think** about possible solutions (eg slow down, change lanes or increase space between my car and other vehicles).
- **Do** something to remain safe (eg slow down and create more space).

This hazard perception process can be summarised as See-Think-Do. Scanning is the 'see' part of the process. Understanding and using these steps is the basis of good hazard perception.

LISTENING FOR HAZARDS

While driving is mainly a visual task, listening can also help detect hazards. For example, you have probably heard the sirens of emergency vehicles before you saw the vehicle.

To help you listen for hazards, it is good not to have the radio or stereo too loud when you are driving. You can see for yourself how important this is. Sit in the driver's seat with all the windows closed and the radio on.

See how difficult it is to hear surrounding noises (or even a friend yelling at you) when the radio is turned up.

KEY POINTS SUMMARY: SCANNING FOR HAZARDS

- Scanning means taking in the whole scene 360 degrees around your car – including any blind spots.
- You need to scan constantly for hazards when driving – look and listen for hazards.
- Use a scanning routine:
  - Look up to 12 seconds ahead – at 60 km/h this is about 200 metres, at 100 km/h about 500 metres.
  - Look for change and movement in the traffic scene.
  - Check your mirrors every 8-10 seconds – outside and inside mirrors.
  - Check your blind spots with a head check before turning or diverging right or left.
- Remember the simple hazard perception action plan:
  - See (hazards).
  - Think (about what might happen and what to do).
  - Do (do something to stay safe).

Tips

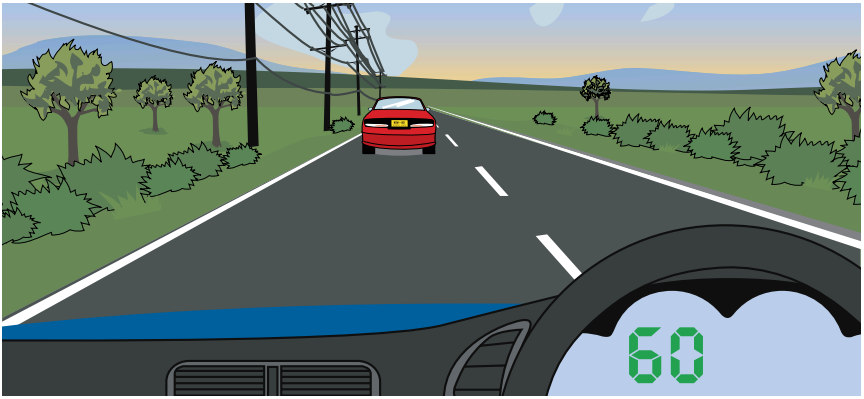
1.. There is a lot of good information and advice on the effects of fatigue and ways of minimising the risk of fatigued driving on the RTA website (www.rta.nsw.gov.au). You might like to visit the site to learn more.

2. Remember to 'stop, revive, survive' – Take a 15 minute break every two hours when driving.

A few last words on becoming a better and safer driver

People continue to develop as drivers until their mid 30s. For most people graduating to a full NSW licence this means about another 15 years for further improvement and development. Experience and growing maturity will be the main teachers.

The aim of this handbook (and the information about the DQT on the RTA website at www.rta.nsw.gov.au/dqt.htm) is to help you develop further as a safer driver – not just to prepare you to undertake the Driver Qualification Test (DQT). So read it often and apply the knowledge and skills contained in it to your driving. You should also visit the DQT section of the RTA website for a more interactive learning experience. But a book or website can never be a substitute for experience gained on real roads and in real traffic.



SUMMARY OF KEY HAZARD PERCEPTION AND RISK MANAGEMENT SKILLS

The key hazard perception and risk management skills are:

- Keeping a safe distance from other vehicles.
- Selecting safe gaps when turning, crossing traffic or changing lanes.
- Scanning for hazards ahead, behind and to the side.
- Minimising the risk to yourself and other road users by
  - Not drinking and driving.
  - Not driving if or when affected by drugs.
  - Avoiding fatigue and by getting enough sleep.
  - Controlling your speed and driving to suit the road, traffic and weather conditions.
  - Minimising risky driving behaviour.
  - Always wearing seat belts.
  - Minimising distractions inside the vehicle.
  - Accepting that you and others make mistakes.

Applying the skills and knowledge in this handbook on the road will help you deal with both the routine and the unexpected situations that may arise when driving.

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Glossary

Adjacent direction – coming from the left or right across your path.

Arterial road – a main road that carries a lot of traffic between suburbs or within cities or towns.

Blind spot – area where your vision to the front, side or rear is blocked when driving.

Blood Alcohol Concentration (BAC) – The proportion or percentage of alcohol in the bloodstream (eg the BAC limit for full licence holders in NSW is 0.05 which means 0.05 per cent alcohol or .05 grams of alcohol per 100 millilitres of blood ie. 0.05g/100ml).

Covering the brake – Where your right foot is off the accelerator and over the brake pedal without activating the brake (see also 'setting up the brake').

Driver Qualification Test (DQT) – A combination of an advanced hazard perception test, and a test of road rules and safe driving. This test must be passed to progress from P2 stage to full licence status.

Fatigue – The experience of feeling 'sleepy', 'tired' or 'exhausted'. Fatigue affects both your body and your ability to drive safely.

Field of vision – What you can see without moving your eyes or head.

Following distance – the distance between your vehicle and the vehicle travelling ahead of you in the same direction.

Full Licence – licence issued to P2 drivers who have held that licence for at least 24 months, have passed the Driver Qualification Test (DQT).

Hazard – any possible danger that might lead to an accident.

Hazard perception – ability to recognise and respond to potentially dangerous situations and react appropriately.

Hazard Perception Test (HPT) – a touch-screen computer test which measures your ability to recognise and respond to potentially dangerous situations and react appropriately when driving. Provisional drivers must pass this test to progress from the P1 to P2 licence stage.

Head check – looking over your shoulder to the left or right to make sure that there's nothing in your blind spot. Also known as shoulder check.

High alcohol hours – Periods of time during the week when alcohol related crashes mostly occur – mostly weeknights and weekends. About 30 per cent of fatal accidents are alcohol related during these hours.

Low alcohol hours – Periods of time during the week when alcohol-related crashes least occur – mostly daylight hours, on weekdays and portions of Saturday and Sundays. Less than 10 per cent of fatal accidents are alcohol related during these hours.

Microsleeps – Brief, unintended periods of loss of attention associated with events such as blank stare, head snapping, prolonged eye closure, etc, which may occur when a person is fatigued but trying to stay awake to perform a monotonous task like driving a car or watching a computer screen.

Multi-Laned road – A road with more than one lane in each direction. These roads sometimes have a median strip dividing traffic travelling in each direction.

P1 Licence – provisional licence - Stage 1. This is the first provisional licence issued to new solo drivers in NSW after 1 July 2000. It must be held for a minimum of 12 months before one becomes eligible to progress to Stage 2. P1 drivers must display a red P plate (red P on a white background).

P2 Licence – provisional licence - Stage 2. This is the second licence issued to new solo drivers in NSW after 1 July 2000. It is issued for 30 months to drivers who have held a P1 licence for at least 12 months and have passed the Hazard Perception test (HPT). A P2 licence must be held for a minimum of 24 months. P2 drivers must display a green P plate (green P on a white background). A P2 licence has fewer restrictions than a P1 licence.

Road rage – A range of anti-social or aggressive behaviour by drivers.

Safe gap – a gap in traffic that enables you to turn, overtake or cross an intersection without being involved in a collision or endangering other road users. This means that no other road users should need to take evasive action to avoid your vehicle.

Scanning – constantly moving your eyes and/or your head when driving so that you can detect hazards that may arise ahead, to the sides and behind your vehicle. Scanning means taking in the whole scene 360 degrees around your car.

Setting up the brake – where your right foot is off the accelerator and lightly activating the brake.

Sleep debt – The difference between the hours of sleep a person needs and the actual hours of sleep they get.

Space cushion – A 'buffer zone' around your vehicle (to the front, sides and rear) between you and other vehicles and road users that gives you time to spot and react to hazards that may arise.

Speeding – Excessive or inappropriate speed – not adjusting your speed to suit the conditions.

Warning signs – yellow diamond shaped signs that warn you of hazards ahead (eg animals or an intersection).

Source of data and statistics

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