



Figure 6.6:
There are many distractions young drivers need to be aware of.

Safety and risk in transport environments

There are many factors to consider when ensuring safety in transport environments. Government officials at local, state and national levels are constantly reviewing statistics in relation to road use and road trauma in order to develop and implement appropriate laws and regulations to ensure there is a high standard of safety for all road users.

Driving is one of the most high risk activities an individual can partake in and despite it being a leading cause of death in young people, it remains one of the most common activities individuals feel safe performing. Driving is often considered a 'rite of passage' when young people receive their licence and gain independence, although the risks associated with driving increase for adolescents and inexperienced drivers.

Road crashes are the second biggest killer of young people in the 15–24 year age group, following suicide (AIHW, 2019). The majority of road crashes involving young drivers occur over the weekend, in the late afternoon and night. This is around the time that young people will be heading to and from parties, a situation that often involves alcohol, peer pressure and many distractions. There is also increased risk of sustaining road injuries for passengers and other vulnerable road users such as motorcyclists and cyclists.

There are different road rules and regulations between the Australian states and territories and they also have varying statistics surrounding road use.

Speeding

Road users breaking the law by speeding not only put themselves at significant risk of injury, but also all other road users. Speed limits are enforced to maximise safety for users with consideration to key factors such as local environmental conditions, historical accident data, local road users and road conditions. For example, reduced limits are commonly located near schools, aged care facilities and high residential areas. Speeding reduces a person's ability to respond to emergency situations in an appropriate time frame and maximises the impact of collisions. It is a leading cause of accidents, road injury and death.

There have been many strategies implemented in order to limit the rate of and prevent speeding. These strategies include introducing fixed speed cameras and mobile speed cameras, school zones, double demerit fines on certain occasions and car alerts when the speed limit is being breached. Drivers with their full licence are to obey speed limits shown on road signs. Individuals who are new to driving have specific restrictions.

The rules for learner and provisional driver licences are fairly similar across all state and territories in Australia, although some differences do apply. Learner and provisional licence holders in Australia must:

- display L or P plates on both the front and back of the vehicle at all times
- have a blood alcohol concentration of 0 per cent
- not use a mobile phone while driving
- not tow a vehicle
- be supervised by a full licenced driver when learning to drive.

Learning activity

1. Research statistics in your state or territory regarding recent road crashes or fatalities.
2. Analyse the effectiveness of the various driving restrictions aimed at increasing safety and reducing fatalities on the roads.
3. Propose other ways that fatality rates caused by speeding can be decreased.
4. Design a pamphlet about the risks of speeding that is directed towards young drivers. Include statistics from your state or territory and ways that young drivers can remain safe on the road.
5. In small groups, create a campaign targeting speeding by young drivers. Your campaign will need to include:
 - current statistics surrounding the target area
 - a television, radio or social media commercial
 - a poster/flyer that could appear in public places such as bus stops or public toilets
 - a catchy slogan or jingle
 - how the effectiveness of the campaign will be measured
 - groups will present their campaign to the rest of the class.

Drink driving

Being under the influence of alcohol or other drugs while driving is extremely dangerous. Drivers with their full licence must not have a blood alcohol concentration (BAC) more than 0.05, with some forms of transport requiring drivers to remain under 0.02. Young drivers on their learner or provisional licence must not have any alcohol in their system if driving. Despite these laws being well known, drink driving is still a contributing factor in many fatal accidents on Australian roads. There have been many campaigns targeting drink and drug driving, yet many individuals still engage in this risk-taking behaviour. It is important to remember that people who do drink drive are not only putting their own life at risk but also the lives of their passengers, other road users and pedestrians.

Random breath testing (RBT) was first introduced in the early 1980s and has resulted in a dramatic decrease in drunk drivers on the road, road-related injuries and fatalities. It involves drivers providing a sample of their breath, which is analysed to determine the level of alcohol in the individual's blood.

Standard drinks

A standard alcoholic drink in Australia contains 10 grams of alcohol. One standard drink always contains the same amount of alcohol, regardless of container size or alcohol type. Instead of counting glasses or containers, drinkers should count standard drinks as a way of keeping track of how much alcohol they have consumed. Counting standard drinks is a much more reliable measure of how much alcohol is consumed compared to counting glasses, bottles or cans. Table 6.2 identifies average drink servings.

Table 6.2: Average drink servings.

Beer	Wine	Spirits
<ul style="list-style-type: none"> ▪ 1.5 standard drinks ▪ 375 mL full strength beer ▪ 4.9% alcohol/volume 	<ul style="list-style-type: none"> ▪ 1.8 standard drinks ▪ 180 mL average restaurant serve of wine ▪ 12% alcohol/volume 	<ul style="list-style-type: none"> ▪ 1.5 standard drinks ▪ 375 mL pre-mix spirits ▪ 35–40% alcohol/volume



Figure 6.7: Being under the influence of alcohol or other drugs while driving is extremely dangerous.

Internet activity

Log on to TitanOnline to complete Activity 6.2 where you will suggest why different people have varying assumptions about drink driving.

Did you know?

Individuals who begin drinking alcohol from a young age are more likely to develop alcohol-related problems in later life.

Effect of alcohol on driving

The laws and regulations pertaining to drink driving have developed over time. The dangers and long-term effects of drink driving have become widely understood. Alcohol has adverse effects on the body, that, when mixed with driving, can have damaging effects.

Consuming alcohol can affect driving skills and ability in the following ways:

- poor concentration
- inability to judge distance
- impaired hazard perception
- drowsiness
- dizziness
- light-headedness
- fatigue
- nausea
- poor coordination
- reduced reaction time
- feeling more reckless and/or invincible.

Drugs and driving

Consuming drugs while operating a vehicle is extremely dangerous. It is illegal to be affected by any illicit drugs while driving. It is also not advised to drive while influenced by other legal drugs, specifically drugs that cause drowsiness as a side effect.

Police can conduct random drug tests, which involve taking a swab of a driver's tongue, which comes up with a positive or negative result, depending on whether they have consumed illicit drugs.

The Transport Accident Commission has been involved in producing many campaigns focused on drink and drug driving.

Internet activity

Log on to TitanOnline to complete Activity 6.3 and investigate the messages conveyed in various drink driving campaigns.

Internet activity

Log on to TitanOnline to complete Activity 6.4 to evaluate roadside drug testing procedures.

Did you know?

Driving under the influence of cannabis increases the risk of crashing twofold.



Figure 6.8:

Never let a friend drive if they are intoxicated.

Road conditions

Every year in Australia, drivers are injured in car accidents resulting from challenging driving conditions such as driving in snow, fog, rain and mist, driving at night-time and dusk, and driving off-road and on dirt roads. It is important drivers understand the potential risks associated with each condition. The driver must adjust their behaviour to suit the conditions and abide by rules, legal requirements and safe driving practices, especially in relation to adjusting speed. By slowing down in dangerous conditions, drivers increase their ability to judge potential risks and act accordingly by stopping or avoiding collisions.

New drivers, who are less experienced in standard driving conditions, often fail to adapt their driving to suit dangerous conditions. In particular, wet weather accounts for a number of road-related injuries and deaths each year in single-vehicle collisions, as young drivers fail to slow down and abide to the speed limits. Rain decreases braking rates, as the water and oil combine on the road to create a slippery surface. Drivers need to slow down, especially when taking corners, and make sure their tyres are properly inflated.

Night driving also accounts for many accidents and deaths on the roads. Drivers spend 25 per cent of driving time at night. Although there is less traffic, deaths caused by accidents at night happen three times more often than during the day. This is due to poor visibility, fatigue and the use of alcohol. Despite many government campaigns on risk-taking at night, people still make the wrong decisions and drive home after a night out. Because of these risks, accidents are more likely to occur on the weekends after social events.

Many accidents occur on country roads where speed is the major cause of accidents. Many country roads are in a poorer condition than city roads and are often surfaced with gravel or dirt. Country roads and highways often require drivers to travel longer distances, increasing driver fatigue and affecting concentration skills. Drivers must stop to rest every two hours in these conditions, to increase safety.

Dirt roads may be dangerous in wet weather conditions, as roads can become unstable, produce potholes and mud. Country roads often require 4WD vehicles featuring high- and low-range gears and transmission control for grip and control on dirt, snow and rocky roads. In conditions such as snow, cars without 4WD features require chains to assist with grip to reduce sliding.



Figure 6.9: Drivers must adjust their behaviour to suit traffic and weather conditions.



Figure 6.10: Rain decreases braking rates, as the water and oil combine on the road to create a slippery surface.



Figure 6.11:
Distracted drivers put themselves, and the lives of others, at risk.

Distracted driving

Becoming distracted while driving is not uncommon and there are many factors that contribute to drivers losing concentration on the road. Some of the reasons for drivers becoming distracted are driving inexperience, fatigue and the presence of passengers and other road users. Other factors such as the consumption of food or drink and the use of mobile phones and entertainment systems are also common distractors.

Inexperience is a major factor in distracted driving. As a new driver, an individual is not equipped with the tools an experienced driver has in relation to being able to remain focused in a number of different driving situations. For instance, an inexperienced driver in heavy rain conditions is more likely to have an accident due to distractions such as operating windscreen wipers and demisters, reduced visibility and reduced road traction.

The use of mobile technological devices while driving has led to countless motor vehicle accidents, many of them with fatal outcomes. The temptation to use a mobile phone may be all it takes to distract a driver. Distracted drivers put themselves and the lives of others at risk. Making smart choices saves lives. Rather than responding to a text message or answering an important call while driving, there are easy life-saving options that can be taken. Drivers can simply pull over to the side of the road, turn off the car and use mobile phones with safety. Mobile phone holders and hands free functions provide other legal options to receiving phone calls while driving.

The entertainment systems in cars are another big distraction drivers must avoid when driving. Taking one's eyes off the road, even just for a few seconds while changing the music, checking navigation maps or adjusting the volume can quickly result in an accident. It is common for vehicles to be involved in rear-end accidents if a driver is distracted, even just for a second. When driving, especially for young people, it is a good idea to have the person sitting in the front passenger seat to be the 'designated DJ', responsible for changing the song and adjusting the volume so that the driver is comfortable and not distracted.

Carrying passengers

Young drivers are the most dangerous drivers on Australian roads, crashing almost four times more often than older drivers. One of the major risk factors associated with novice drivers and crashes is carrying passengers. Carrying passengers is linked to risk factors such as speeding, hazardous driving, non-seatbelt usage and peer pressure. These risk factors lead to many accidents and fatalities each year. To decrease the risks associated with carrying passengers, most state and territory governments have introduced restrictions on carrying passengers for provisional drivers:

- In the Australian Capital Territory, P1 drivers under 25 are limited to one peer-aged passenger between the hours of 11pm and 5am.
- In Queensland, they must not carry a passenger under 21 between 11pm and 5am, unless it's an immediate family member.
- In South Australia, provisional drivers under the age of 25 must not drive between midnight and 5am, or with more than one passenger aged between 16 and 20.
- In Tasmania, P1 licence holders under 25 are only allowed one passenger aged between 16 and 21.
- In Victoria, they must not carry more than one passenger aged between 16 and 21.

Minimising distractions and developing responsible driver and passenger behaviours are essential for safer driving. Peer influence can have a positive or negative effect on the behaviour of drivers. While passengers are in a position to have a positive influence on driver behaviour, drivers need to take responsibility for their own and their passengers' behaviours.

Fatigue

Fatigue is a major contributing factor in road crashes. Fatigue accounts for up to 35 per cent of fatal road crashes. Fatigue-related crashes are most likely to occur between midnight and 6 am. Early warning signs of fatigue include yawning, tired eyes, restlessness and oversteering. Once fatigued, the only cure is to stop and take a break. Fatigue while driving can result in microsleeps, which are brief, unintended episodes of sleep lasting for seconds to minutes. Individuals may not even be aware they have had a microsleep and can occur even when a person's eyes are open.

Internet activity

Log on to TitanOnline to complete Activity 6.5 to evaluate the danger of microsleeps.



Figure 6.12:

Fatigue is a major contributing factor in road crashes.

Learning activity

1. Research statistics surrounding speeding and young people based on your state or territory. Record your findings.
2. Discuss how alcohol can impair driving skills.
3. Compare the fines for speeding offences in various states and territories. Discuss the differences.
4. Brainstorm two further restrictions that could be placed on learner and provisional drivers to minimise injuries and fatalities on the road.
5. Discuss the term 'distracted driving' and provide a range of helpful tips to minimise driver distraction.

Consequences of unsafe road use

Any action an individual takes on the road has repercussions. Often the consequences of unsafe road use can be life changing and dramatically interfere with the way an individual lived their life before the unsafe road behaviour. There are numerous unsafe road behaviours, including speeding, drink driving, drug driving, using a mobile phone and breaking road rules.

Using the road in an unsafe manner can result in:

- stress
- guilt
- loss of licence
- fines
- loss of independence
- criminal record
- loss of employment due to loss of licence
- disability
- loss of life
- jail time.



Figure 6.13:

The consequences of unsafe road use can be life changing.

Promoting safety on the roads

Road safety campaigns devised by state and territory governments aim to raise awareness and educate road users of preventative safety behaviours. The campaigns usually target priority action areas, such as speeding, drink driving and fatigue. The campaigns are commonly advertised as television commercials and images on social media. Other ways they are publicised to the community is through billboards and signs alongside roads in attempt to make road users more aware. Campaigns often concisely promote memorable messages, such as 'Ride to live,' 'Don't trust your tired self' and 'Get your hand off it.'

When a vehicle stops suddenly, a great deal of force is applied to the objects within it, including drivers and passengers. Seatbelts distribute the force to the strongest parts of the body – the chest and the pelvis. Seatbelts also prevent the body from accelerating, with significant force, towards the dashboard or windshield. In this case, the force would be focused on the head, which can easily kill or severely injure a driver or passenger.

The seatbelt has a locking system that allows or limits its ability to extend and retract. The locking system responds to either the car's movement or the belt's movement. In relation to the car's movement, the locking system comes into play when something jerks the belt webbing. Pre-tensioners also exist to reduce the slack in the belt and reduce the force of the belt on the body.

An airbag is a soft pillow drivers and passengers can land against in a collision, rather than landing against the steering wheel, dashboard or windscreen. By law, new cars are required to have airbags on the driver and passenger sides. It is also common in many new cars to have seat-mounted and door-mounted side airbags to offer extra support.

While seatbelts restrain drivers and passengers, airbags are designed to slow the momentum of drivers and passengers rather than force them to an abrupt halt. Airbags are made of a nylon fabric and a sensor in the device causes compressed gas to inflate the airbag, in about 1/25th of a second.



Figure 6.14:
Drivers and their passengers should always wear a seat belt.



Figure 6.15:
All new cars are required to have airbags on the driver and passenger sides.

Internet activity

Log on to TitanOnline to complete Activity 6.6, investigating safety features of modern cars.

Just as road safety campaigns have targeted human behaviour, improvements in vehicular safety have resulted in improved rates of death and injury. The compulsory wearing of seatbelts was introduced in Australia in 1973. In the years that followed, there was a significant decline in Australian road deaths.

Technological advancements have also been added to new cars, including the following safety features to prevent injury and harm to road users:

- anti-lock braking systems (ABS)
- lane departure assistance
- collision warning systems
- laminated glass
- speed alerts
- reversing cameras.

ABS aim to prevent car wheels from locking under sudden braking situations. Furthermore, some vehicles have electronic stability control, brake force distribution and assist are designed to minimise the time taken for drivers to react and brake the car in a safe manner. The use of laminated glass for windscreens and some other windows is also becoming increasingly popular. Unlike other glass types, laminated glass is produced to stay connected when broken and not shatter into small pieces that can injure occupants. Technological warning systems are designed to alert drivers when they may be unsafely crossing lane markings, speeding or close to an object.



Figure 6.16:
The laminated glass used in cars is designed to not shatter.

Internet activity

Log on to TitanOnline to complete Activity 6.7 which requires you to review Australia's road safety initiatives.

Learning activity

1. Identify a range of unsafe driving behaviours and statistics surrounding these behaviours.
2. A 35-year-old father of three works full time in the city, half an hour from his home. He loses his licence for speeding. Discuss the consequences he and his family might experience.
3. Explain the ways in which passengers can:
 - a. distract the driver
 - b. help prevent the driver becoming distracted.
4. Analyse how road environments can affect driving ability.
5. Search online for a new car of your choice. Outline all the safety features provided as standard.