

## UNIT 7

# ROAD AND FIRE SAFETY



## UNIT SUMMARY

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# TYPES OF FIRE AND HOW TO DEAL WITH THEM

## Fire Safety

Fire is a chemical reaction that produces bright light, heat, and smoke. For thousands of years, people have used fire for many reasons, including the following:

- Cooking
- Warmth
- Light
- Engineering
- Manufacturing
- Powering vehicles



An out-of-control fire can cause damage to buildings, nature and humans. When fire comes into contact with skin (even for a short amount of time) it can burn or cause **blisters**. If the fire is big enough, it can result in death. Knowing how to safely use, control and **extinguish** a fire is an important skill.

**Extinguish:** to cause something to stop burning.

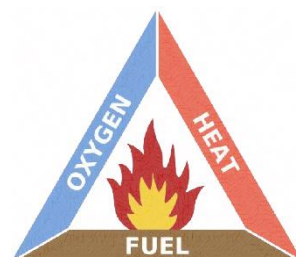
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## Fire Triangle

All fires need **three** different elements to start.

### #1 Heat

Heat increases the temperature of a material until a fire starts. Some sources of heat include the **sun**, **ovens**, and **sparks**.



### #2 Fuel

The fuel for a fire may be

- a **solid** (*coal, wood, paper, or cloth*);
- a **liquid** (*gasoline, kerosene, paint, or cooking oil*);
- a **gas** (*propane, natural gas, or butane*).

The type of fuel that is burning will decide which way the fire should be extinguished.

### #3 Oxygen

As well as heat and fuel, fires need oxygen to stay alight. Without oxygen, no matter how hot an object gets, it will not burn.

# TYPES OF FIRE AND HOW TO DEAL WITH THEM

Without any one of the three elements, a fire cannot continue to burn. If you take one away, it will extinguish the fire. Fires can be stopped by removing one of the following:

- **Heat**  
Using water on some fires will cool the heat and cause the fire to go out.
- **Fuel**  
If a fire runs out of fuel, it will go out.
- **Oxygen**  
If the oxygen is removed to smother the fire, it will go out.

**Smother:** to cover something in order to keep it from growing or spreading.

## Fire Extinguishers

Fire extinguishers are used to control small fires. They do this by removing one of the three elements. They will either control the heat or smother a fire.

They can stop a fire from spreading and becoming bigger. If the fire is too big and could be a danger to you, the best thing to do is to leave and find a safe area. If a fire is too big to deal with safely, call 997 for the Civil Defence.

There are four main types of fire extinguisher:

- Water
- Foam
- Powder
- CO<sub>2</sub> (carbon dioxide)

## The Different Types of Extinguishers

It is important to use the correct type of fire extinguisher depending on what type of fuel is burning.

The table shown shows the different extinguishers and the types of fires they can be used for.



WOOD, PAPER, FABRICS, ETC.	✓	✓	✗	✓
FLAMMABLE LIQUIDS	✗	✓	✓	✓
FLAMMABLE GAS	✗	✓	✗	✗
ELECTRICAL	✗	✓	✓	✗
COOKING OIL, FATS	✗	✗	✗	✗

# TYPES OF FIRE AND HOW TO DEAL WITH THEM

## Electrical Fire

This is a fire caused by misusing electricity. An example of this is putting too many plugs into a single socket and overloading it.

### How to deal with this fire?

If it is possible to remove the plug safely, then do so. If not, find the fuse box and switch off the main power. Then extinguish the fire using **dry powder** or **CO<sub>2</sub>**. If the fire becomes too large, get out of the building, and call the Civil Defence.

Never use water on an electrical fire, it could cause you to get an electric shock.

## Oils and Fats

At home, this is a fire normally caused by overheating oil when cooking. When oil gets too hot, it can catch fire on its own (without a spark).

### How to deal with this fire?

If it is possible to turn the cooker off safely, then do so. Try to cover the pan with the correct lid or use a **fire blanket**. Do not move the pan as the contents could spill and burn you. If the fire gets out of control, get out of the building, and call the Civil Defence.

Do not use water on an oil fire, using water will cause the oil to splash and will spread the fire.

## Refuse Fire (solid)

Rubbish or trash in bins is good fuel for a fire. Paper, plastic, and wood are all flammable materials. Most bins have these materials inside.

### How to deal with this fire?

If the bin has a lid, and it is safe to do so, close it which will cut off the oxygen to the fire. Or use water, foam, or dry powder to extinguish the fire. Aim at the base of the fire, not the flames. If the fire gets out of control, call the Civil Defence.

Do not throw burning cigarettes into rubbish bins or down trash chutes. This is a common cause of fires in apartment buildings.

## How to Use a Fire Extinguisher

Firstly, check you have the right extinguisher and that the pressure is correct (the needle should be in the green area on the gauge). Remove the tamper seal and remember 'PASS' for what to do next.

## TYPES OF FIRE AND HOW TO DEAL WITH THEM

<b>P</b>	<b>Pull the pin</b> This will allow you to use the extinguisher.
<b>A</b>	<b>Aim at the base</b> Do not aim at the flames; you must extinguish the fuel at the bottom of the fire.
<b>S</b>	<b>Squeeze the handle</b> This will release the contents.
<b>S</b>	<b>Sweep from side to side</b> Move the fire extinguisher from side to side. Do this until the fire is completely out.

### The First Aid for burns

- Stop the burning by putting out the flames.
- Remove any jewellery or clothing near the burn.
- Cool the area with running water for at least 10 minutes
- Get medical attention if needed.

# EMERGENCY EVACUATION

## Assembly Points

**Assembly:** a group of people who have gathered together.

**Evacuate:** to remove yourself or someone from a dangerous place.

In the event of an emergency, such as a fire, it is important to evacuate the area immediately. Whatever the danger is, you need to move quickly and safely to an assembly point.

Large buildings such as offices and schools need a safe place for the people to go to during an emergency such as a fire.

An assembly point is a specially chosen place for people to go to in such a situation. Having an assembly point means everyone will know exactly what to do and where to go in an emergency.



Once at the assembly point, checks can be made to see that everyone who was in the building has made it out safely.

This is why it is important to take an attendance register in your school or workplace. Attendance registers hold information about who is in a building at a certain time. This information helps the authorities know who has made it to the assembly point and who has not.

People who haven't got to the assembly point may still be inside and in need of help. If you think there are still people in the building, you should tell the fire safety officer or the emergency services as soon as you can. Once you have left the building, do not re-enter until the emergency services have said it is safe to do so.

# EMERGENCY EVACUATION

When choosing an assembly point, these things should be considered:

1. **The Location**

Fires can cause explosions or the building to collapse. The assembly point needs to be a safe distance from the building.

2. **The Size of the Space**

The assembly point needs to be big enough for all of the people in the building.

3. **Accessibility**

Emergency services need clear access to the area. People need to be able to reach the area easily.

## Evacuating a Building Safely

During an emergency, it is important that people leave a building quickly but safely so that they don't put themselves in more danger. There are some rules that you, and others, can follow that will ensure that everyone makes it to the assembly point safely.

- **Don't use elevators**

Use the stairs instead. Larger buildings will usually have at least one fire exit on every floor. When in school or any large building, have a clear idea of where the nearest fire exit is to your location.

- **Help Others Where Needed**

Older people and people with disabilities may need help. Be aware of this and help where you can if it is safe to do so. If you have a disability, make sure someone will help you during an emergency.

- **Do not Run**

Leave the area quickly but in a calm and controlled manner. Walk quickly, but do not run. Running will cause other people to panic and run also. Actions like this cause crushes to happen at exit points.

- **If There is Smoke 'Get Low and Get Out'**

If smoke is present, move below the smoke where the air is cleaner and safer to breathe. Look at the picture of the fireman crawling. This is the 'get low and get out' technique.



# EMERGENCY EVACUATION

- **Do as You are Instructed**

Stay at the assembly point until you are told to leave. If you leave before being instructed to, the authorities may think you are still inside. People could get injured or killed trying to save you when they don't need to.



# THE IMPORTANCE OF ROAD TRAFFIC SAFETY

## Road Traffic Safety

Road traffic safety aims to prevent road users being killed or very badly injured while traveling on public roads.

Road users are not only car drivers, they include anybody who uses roads, for example

- pedestrians, (المشاة)
- cyclists,
- motorcyclists,
- vehicle passengers,
- horse riders,
- and passengers of public transport.

## Worldwide Statistics on Road Traffic Injuries

- Road traffic accidents cause the deaths of around **1.35 million** people each year and injure up to **50 million** more.
- Road traffic injuries are the leading cause of death for children and young adults aged between 5-29 years.
- Males under the age of 25 are 3 times more likely to be killed in a road traffic crash than females.
- Harm from road traffic crashes is greater than that from all other forms of transportation combined (air, sea, rail, off-road).

**Statistic:** a number that represents a piece of information (such as how common something is).

## Increasing Road Traffic Safety

Because of the high rates of death and injury due to road accidents, there are many measures that different countries have put in place to try to make their roads safer for all users.

In the United Arab Emirates, the government has created different strategies to improve road safety including:

- speed management measures.
- educating road users.
- protecting pedestrians and cyclists.
- laws to protect car drivers and other road users.

# THE IMPORTANCE OF ROAD TRAFFIC SAFETY

## Speed Management

Measures that are used in the UAE to control the speed that vehicles travel are:

- speed limits that tell the driver the maximum speed for the road they are using.
- police patrols and speed cameras to catch drivers who are driving too fast.
- setting speed limits that suit the type of road (city road, motorway).

## Educating Road Users

In the UAE, drivers need to pass a driving test before they can drive on the roads. This is so that people have had instruction on how to drive properly and follow the rules of the road. The minimum age for a driving licence in the UAE is 18 years for cars and other light vehicles.

To prevent road accidents, different government departments in the UAE have launched awareness campaigns to educate motorists and lessen the impact of traffic fatalities.

## Protecting Pedestrians and Cyclists

Some of the most at-risk groups of people who use the roads and footpaths are pedestrians and cyclists. Around **100** pedestrians a year are killed on the UAE's roads.

The United Arab Emirates government has created measures to protect pedestrians including:

- reduced speed limits in built-up areas where there are more pedestrians and cyclists.
- making more zebra crossings and pedestrian bridges so that people can cross the road safely.
- creating school safety zones.

**Pedestrian:** a person who is walking along a footpath or crossing a road.



To protect cyclists, the UAE has:

- Promised to make the UAE more cycle-friendly by creating safe routes for cyclists. In Dubai, the Road and Transport Authority wants to create almost **650 km** of cycling tracks by 2025.
- Created laws that cyclists must follow, including wearing a protective helmet, having lights fitted on the front and back of their bike, and using cycle tracks where available. Cyclists are not allowed to ride their bike on the pavement.

# THE IMPORTANCE OF ROAD TRAFFIC SAFETY

## Laws to Protect Car Drivers and Other Road Users

A law is a rule that is set by a government. The laws of a country must be followed, or the person breaking the law will receive a fine or a penalty.

Road traffic laws are in place so that they discourage drivers to do dangerous or risky things, such as speeding or not wearing a seatbelt.

They also cover other road users such as cyclists and pedestrians, for example, in the UAE pedestrians must cross the street at crossing areas, or they could receive a fine of **400 AED**.

# UAE ROAD TRAFFIC ACCIDENT STATISTICS

## Causes of Road Traffic Accidents

In 2016, there were **725** deaths and **6,681** people injured in road accidents in the UAE. After heart-related issues, traffic-related accidents cause the most deaths in the UAE.

According to government statistics, the **top 7** causes of road accidents in the UAE are:

**1. Sudden Swerving/Lane Changing**

This is the top cause of accidents in the UAE. It happens when a car moves into another lane without making a signal or checking that the lane is clear.

**2. Driving Without Keeping a Safe Distance (Tailgating)**

Tailgating is when a car is driving too close to the car in front. If a car is following another too closely, there is not enough time to stop if the driver in front brakes suddenly.

**3. Dangerous Driving**

There are many types of driving that this covers, for example speeding, running red lights, cutting people off or passing illegally.

**4. Entering a Road Without Checking That it is Clear**

This can include joining the highway without checking for traffic, or turning into a street when there are other cars coming.

**5. Lack of Attention or Judgement**

This can include using a mobile phone or being distracted while driving.

**6. Not Following the Road Lanes**

This means driving between two lanes or driving on the wrong side of the road.

**7. Reversing in a Dangerous Way**

Reversing without checking what is behind the car.

## UAE Statistics on Road Traffic Accidents

Statistics are numbers that relate to a piece of information, such as how common something is or how often something happens. They can be used to create graphs and tables to show the information in a simple way.

Below are some recent statistics about road traffic accidents in the United Arab Emirates.

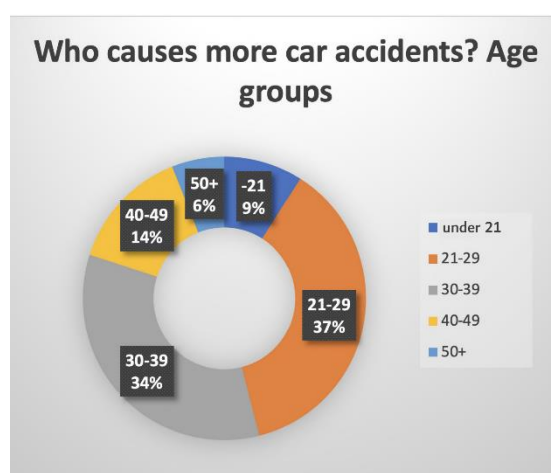
# UAE ROAD TRAFFIC ACCIDENT STATISTICS

- Around **2 people** are killed and **18** are injured on UAE roads **every day**.
- **90%** of car accidents are caused **by males** and **10%** are caused **by females**.
- **2 out of 3** people killed in road accidents in Abu Dhabi were **not wearing seatbelts**

## Types of vehicles involved in accidents:



1. Private car: **64%**
2. Truck/bus: **11%**
3. Taxi: **8%**
4. Bike: **8%**
5. Minibus: **5%**



## Fines and Penalties for Breaking UAE Traffic Laws

Rule	Fine	Penalty
Speeding over the speed limit by no more than 20 km/hour	AED 300	-
Speeding over the speed limit by more than 80 km/hour	AED 3,000	23 black points
Dangerous driving	AED 2,000	23 black points
Jumping traffic signals	AED 1,000	12 black points
Using a mobile phone when driving	AED 400	-
Sudden lane changing	AED 1,000	4 black points

# THE IMPORTANCE OF USING A SEATBELT

## Seat Belts

Seat belts are designed to keep people in their seats during a crash. If people do not wear a seat belt, they might hit the steering wheel, dashboard or even go through the windscreen. This could cause serious injury or death.

Modern testing has found that wearing seat belts reduces the risk of injury during a crash by up to 63%. It also found that it reduces deaths by 50%.

In a crash, a backseat passenger who is not wearing a seat belt can be thrown forward with enough force to kill the person in front of them.

Statistics according to Road Safety UAE, 2017:

- 78% of front-seat passengers who wear seat belts in the UAE.
- 50-60% of lives saved by wearing a seat belt.
- 34% of people do not have proper child restraints in their car.
- 11% of back-seat passengers who wear seat belts in the UAE.

## Infants and Safety Seats

Infants (babies) and children are the people most at risk during a car accident. A child in the back of a car, without a seat belt, has very little chance of surviving a crash.

The most dangerous place is the **middle** of the back seat where, in most cases and even at low speeds, the child will be thrown into the front window. It is possible for the child to go right through the window and land outside of the car.

Recent studies have shown that using child safety seats or booster seats can reduce the risk of death in a crash by **70% to 80%** for small children and babies.

Children should be taught from an early age that they should sit in the back seat and use a child safety seat. If this happens, they will think it is normal.

However, if they are not taught these things, they will want to sit in the front, not use seat belts and move around while the car is moving.

# THE IMPORTANCE OF USING A SEATBELT

## Child Safety Seats and Seatbelts

### Rear-Facing Car Seat

- Infants up to 2 years of age.
- Should be fitted in the back of the car.
- Never fitted in the front.



### Front-Facing Car Seat

- 2 years and above, up to 125cm.
- Should be fitted in the back of the car.
- Never fitted in the front.

### Booster Seats

- Children between 125cm and 145cm.
- Should be fitted in the back of the car.
- Never fitted in the front.

### Normal Seat belts

- Children at least 145 cm tall.
- 10-year-olds can travel in the front.

If a car is moving, everyone inside it should be wearing a seat belt or using a child safety seat

## Seat Belts

In 2017, the UAE Ministry of Interior announced seat belt laws to protect car drivers and their passengers. The laws state that:

- everyone travelling in the car must wear a seatbelt, regardless of their age and whether they are travelling in the front or the back of the car.
- children under 10 years of age are not allowed to sit in the front seat of a car.
- car seats must be used for children under 10.

The car driver is responsible for making sure that these rules are followed. There are fines of **400 AED** and 4 black licence points for failing to observe the laws.

# SAFE DRIVING PRACTICES

## How to Practise Safe Driving

There are things that you can do to ensure that you, your passengers, and other road users stay safe and avoid accidents. These include:

- being aware of speed limits.
- leaving a safe distance between your car and the car in front.
- using your mirror and indicator when changing lanes.
- being aware of weather conditions that can affect driving.

## Speed Awareness

The speed of a vehicle greatly affects road safety. Speed limits are in place to make sure safe driving speeds are followed on the roads.

Speeding reduces the time you have to make a decision and increases the braking distance required. High speeds greatly increase the risk of severe injury or death to you and others on the road.

**Pedestrian:** a person who is walking in a city or along a road.

## Speed and Survival Rates

The percentages below relate to speed and how it affects your survival rates if you are hit by a car.

**32kph (20mph)**

10% chance of the person dying

**48kph (30mph)**

20% chance of the person dying

**64kph (40mph)**

80% chance of the person dying

## The Need for Speed Limits

Speed limits are set to control speeds in certain areas. This is done for many reasons, including the following:

- Pedestrian safety
- The condition of the road
- School zones



# SAFE DRIVING PRACTICES

## Stopping Distances at Different Speeds and Conditions

**Stopping distance** is the time it takes to bring a moving car to a complete stop. A stopping distance depends on three factors:

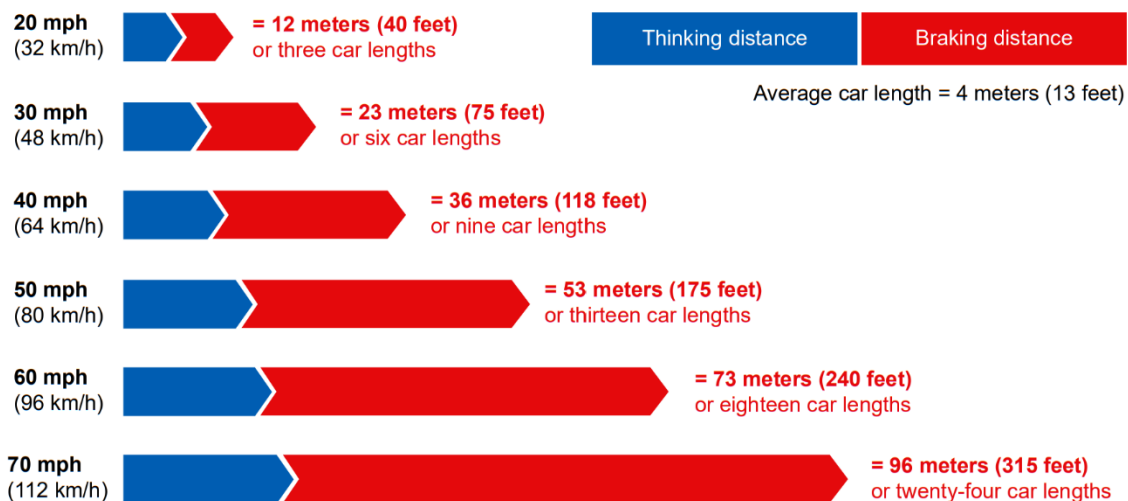
- **Reaction Time**  
This is the time it takes between your brain registering the events in front of you and you pressing the brakes. The distance increases the faster you are travelling.
- **Braking Distance**  
The time it takes for the car's braking system to bring the car to a complete stop.
- **True Stopping Distance**  
This is the reaction time plus the braking distance.

The formula is:

$$\text{Reaction time} + \text{Braking distance} = \text{True stopping distance}$$

Always try to leave a **three-second** gap. When the car in front of you passes an object (like a street light), count how many seconds it takes for you to pass the same object. If it's less than three seconds, then you are too close and should slow down. In wet conditions, add another **2/3 seconds** as it will take longer to stop.

### Stopping distances



# SAFE DRIVING PRACTICES

## Changing Lanes Safely

Sudden lane changes are the biggest cause of road traffic accidents in the UAE. To make a safe lane change while you are driving, follow these three steps:

- 1. Mirror**  
Check your mirror and blind spots.
- 2. Signal**  
Always make a signal when you are going to change lanes.
- 3. Move**  
When it is safe to do so, change lanes.

## Weather Conditions

At certain times of the year, the United Arab Emirates experiences extreme weather such as heavy rainfall or fog. When this happens, it makes driving more dangerous as there can be flooding on the roads or low visibility.

**Visibility:** how far you are able to see because of weather conditions.

When driving in heavy rain or fog, you should:

- **Slow down.** Driving at normal speeds is dangerous as you cannot see what is in front of you.
- **Turn on your lights.** Use your headlights or fog lights so that other road users can see your car.
- **Leave space.** Leave extra space between you and the car in front of you.
- **Stop.** If you feel that it is not safe to continue, pull over and stop driving as soon as you can. Find a gas station or restaurant and wait until the weather improves.

## Things to Remember When Practising Safe Driving

- Avoid driving aggressively, be patient with other road users.
- Do not use your mobile phone while driving, wait until you stop.
- Plan your journey and leave enough time so you don't need to drive too fast.
- Be aware of motorbikes and cyclists on the roads.
- Make sure that your car is well maintained and check your tyre pressures regularly.

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## SAFE DRIVING PRACTICES

Dubai has gained worldwide attention by getting a fleet of supercars to add to their police patrol fleets. There are cars such as the Lamborghini Aventador, Ferrari FF, Aston Martin One-77 and the Bugatti Veyron, the world's most expensive production car.

The reason is that it is a cleverly disguised campaign. The campaign aims to make the Dubai police force more approachable to the public. The cars are sent to popular places throughout the city for the public to view.

The police understand that the attention the cars get encourages communication. This makes the police more accessible to the community. Further, it will be easier for them to get safety messages across in the future.

# UNIT 7

# ROAD AND FIRE SAFETY

## UNIT SUMMARY

### Resources

- G12 – Term 2 – Unit 7 (Boys): Road and fire safety

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