Driver Education
Classroom and In-Car Curriculum

Unit 2

Getting Acquainted with the Vehicle

Table of Contents

Overview, Objectives and Words to Know

Unit 2 Introduction
Lesson Content

Overview

Unit 2 will help the student become acquainted with his/her vehicle by introducing the following concepts: how to make routine checks prior to entering the vehicle, how to compensate for the area around the vehicle that cannot be seen, how to perform pre-drive procedures, why safety restraints are important, how to locate and operate the vehicle information and control devices, how to interpret the control and information device symbols, how to set and use mirrors, how to use reference points, and how to use the vehicle owner's manual.

Objectives

The student will:

1. Describe pre-entry checks to be made around the vehicle.
2. Identify the obscured areas around the vehicle.
3. Demonstrate knowledge of and proper usage of protective devices available to occupants of motor vehicles.
4. Identify and describe the location, function and operation of safety, communication, comfort, convenience, and control devices, as well as control and information device symbols found in a passenger vehicle in preparation for starting the vehicle.
5. Describe the pre-drive procedures used after entering the vehicle and demonstrate knowledge of enhanced mirror settings and mirror usage.
6. Demonstrate knowledge of standard and personal vehicle reference points to know where the vehicle is positioned in relation to the roadway.
7. Describe the purpose and use of the vehicle owner's manual.
8. Define key words associated with the unit objectives.

Words to Know

- Accelerator
- Air bags
- Area around the vehicle
- Body position
- Brake pedal
- Cruise/speed control
- Enhanced mirror settings
- Gear selector lever
- Hazard flasher
- Head restraint
- Headlights (high and low)
- Hood release
- Ignition switch
- Instrument panel
- Key fob
- Mirrors
- Operating vehicle control devices
- Owner's manual
- Parking brake
- Pre-drive procedures
- Pre-entry checks
- Safety, communication, comfort and convenience devices
- Safety belts
- Traditional mirror settings
- Turn signals
- Trunk release
- Visual reference point
- Windshield wipers and washers

Unit 2 Introduction	**Lesson Overview** Time Frame – 2 hours
Teacher Information and Resources 	
Slides	PowerPoint Slides 2.1 – 2.51
Videos	2.1 Pre-Entry Checks (1 minute 12 seconds) 2.2 The Area Around the Vehicle (1 minute 23 seconds) 2.3 Reducing Your Risks in the Crash (9 minutes 30 seconds) 2.4 Getting to Know the Vehicle (7 minutes 59 seconds) 2.5 Pre-Drive Procedures, Mirrors and Blind Spots (5 minutes 27 seconds)
Video Review	2.1 Video Review: Pre-entry Checks 2.2 Video Review: The Area Around the Vehicle 2.3 Video Review: Reducing Your Risks in the Crash 2.4 Video Review: Getting to Know the Vehicle 2.5 Video Review: Pre-Drive Procedures, Mirrors and Blind Spots
Fact Sheets	2.1 Pre-entry Checks 2.2 The Area Around the Vehicle 2.3 Safety Restraints 2.4 Safety, Communication, Control, Convenience Devices and Symbols 2.5 Pre-drive Procedures, Mirrors and Blind Spots 2.6 Vehicle Reference Points 2.7 Purpose and Use of the Vehicle Owner's Manual 2.8 Words to Know Definitions Page
Worksheets	2.4.1 Safety, Communication, Control and Convenience Devices 2.4.2 Control and Information Device Symbols 2.4.3 Instrument Panel 2.6 Identifying Reference Points 2.8 Words to Know Matchup
Learning Activities	2.0 Key Words – Word Wall 2.2 The Area Around the Vehicle Demonstration 2.4.1 Dashboard BINGO 2.4.2 What Am I?
Textbooks	**Preferred Textbook:** AAA **HOW to DRIVE** Chapters 2 and 3 Other Textbooks: Drive Right: Chapters 3 and 4 Responsible Driving: Chapter 1 Other Textbook: _____
Unit 2 Test	Unit 2 Test – Getting Acquainted with the Vehicle – 10 questions

Key Words	Unit 2 Activity Lesson Content

Unit Objectives:

Student will define the meaning of the key words in Unit 2.

Lesson Content	Materials and Resources
Key Words ➢ **Learning Activity 2.0** Throughout the instruction of Unit 2, conduct learning activity to help students with vocabulary and spelling of key words.	➢ Learning Activity 2.0: Key Words – Word Wall

Learning Activity 2.0 — Key Words – Word Wall

Topic	**Word Wall**

Information

Students begin to assimilate a new language in driver and traffic safety education. Some words are familiar, but others are new. The use of a word wall helps students with vocabulary and spelling as well as provides students with a tool for reference without "giving away" answers.

Materials Needed

1. Make word cards out of paper, poster board, or card stock cut in strips.
2. Markers in various colors.
3. A space to post words (i.e., bulletin board).
4. Tape or stapler and staples to affix cards on the word wall.

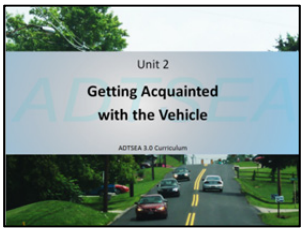
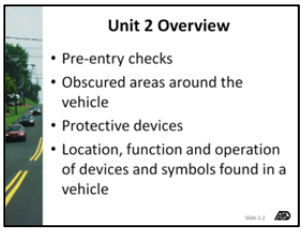
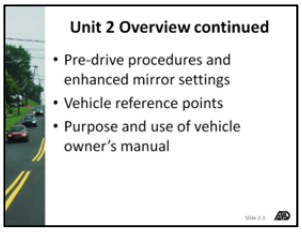
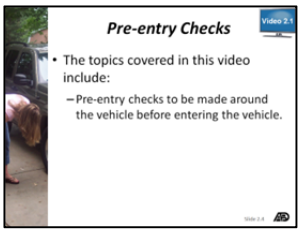
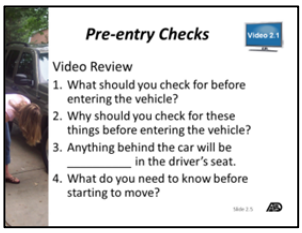
Learning Activity

1. As the instructor introduces new words in a unit, the instructor should post these words on the word wall.
   a. The instructor should remind students to use the words on the wall for recall and correct spelling.
   b. When an instructor poses a question and a student correctly answers the question, the instructor should allow that student to make a word strip and post the strip in the designated location on the word wall. Because this is new learning, recalling words are part of the learning process.
   c. Students often enjoy decorating their word with a particular flair, color, or design.
2. Words may remain posted for just the unit or remain posted throughout the course.

Unit Objectives and Pre-entry Checks

Part 1
Lesson Content

Lesson Objective:
Student will describe pre-entry checks to be made around the vehicle.

Lesson Content	Materials and Resources
Unit Objectives	
➢ **Slides 2.1 through 2.3** Give an overview of what students should know and be able to do by the end of the unit.	➢ Slides 2.1 through 2.3: Title and Overview   
Pre-entry Checks	
➢ **Video Review 2.1** Duplicate and distribute Video Review 2.1. Students should complete the worksheet as they watch the video.	➢ Video Review 2.1 and Answer Key: Pre-entry Checks
➢ **Slides 2.4 and 2.5 – Video 2.1** Discuss the topics covered in Video 2.1. Play Video 2.1. *Pre-entry Checks* (Time: 1 minute 12 seconds) After viewing, review Video Review 2.1 to gauge student understanding of the video.	➢ Slides 2.4 and 2.5: Video 2.1 *Pre-entry Checks*  

Pre-entry Checks — Video Overview 2.1

Video Overview 2.1: Pre-entry Checks

Title

Pre-entry Checks

Time

1 minute 12 seconds

Topics Covered

1. Pre-entry checks to be made around the vehicle before entering the vehicle.

Video Review

1. Have students complete a video review worksheet as they watch the video.
2. After viewing the video, review the worksheet to gauge students' understanding of the video.

Instructor Notes

Video Review: Pre-entry Checks — Video Review 2.1

Video Review 2.1: Pre-entry Checks

Name	Date

1. What should you check for before entering the vehicle? _____

   _____

   _____

   _____

2. Why should you check for these things before entering the vehicle? _____

   _____

   _____

3. Anything just behind the car will be _____ in the driver's seat.
4. What do you need to know before starting to move? _____

   _____

   _____

Video Review: Pre-entry Checks | **Video Review 2.1** ANSWER KEY

Video Review 2.1: Pre-entry Checks ANSWER KEY

1. What should you check for before entering the vehicle?
   Answer: Objects that could damage vehicle when moved, children and pets, leaks, damage to vehicle, tire condition

2. Why should you check for these things before entering the vehicle?
   Answer: Helps the driver to operate the vehicle safely and efficiently

3. Anything just behind the car will be _____ in the driver's seat.
   Answer: Invisible

4. What do you need to know before starting to move?
   Answer: Where any kids are

Pre-entry Checks	**Part 1 continued** Lesson Content

Lesson Content	Materials and Resources
Pre-entry Checks ➢ **Fact Sheet 2.1** Duplicate and distribute Fact Sheet 2.1 for students to use as a resource and study guide. ➢ **Slide 2.6** Introduce vehicle pre-entry checks and procedure of approaching the vehicle when the vehicle is parked on the street. At this point in the instruction, students should have completed all the information related to pre-entry checks.	➢ Fact Sheet 2.1: Pre-entry Checks ➢ Slide 2.6: Pre-Entry Checks 

Pre-entry Checks

Fact Sheet 2.1
Content Information

Pre-entry Checks

Certain checks and procedures must become habits if drivers are to operate a motor vehicle safely and efficiently. The first habit to develop is to prepare, him/her, the vehicle and passengers for travel. For every drive, it is important that the driver check around the outside of the vehicle. A few simple checks will help prevent trouble on the road.

Drivers should approach the vehicle with key/key fob in hand and be alert for other pedestrians and drivers. Drivers should ensure that they are visible to other drivers. Drivers should also walk well away from parked vehicles. If the vehicle is parked at the curb, drivers should approach the driver's door from the front of the vehicle, facing traffic to increase awareness of oncoming traffic. Before entering the vehicle, drivers should check around the outside of the vehicle.

1. Check around outside of vehicle for the following items:
    a. Broken glass (windows, lights, mirrors)
    b. Body damage
    c. Fluid leaks
    d. Objects that could damage vehicle when moved
    e. Children and pets
    f. Snow build up that can block windows and lights

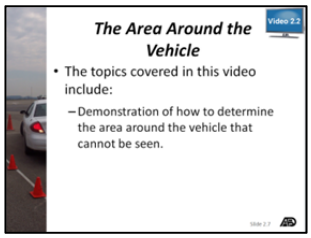
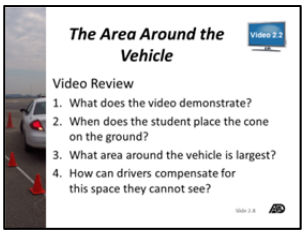
2. Check tires for the following:
    a. Condition – ensure that tread is evenly worn and look for cuts or other damage
    b. Inflation – check for proper inflation with tire gauge
    c. Direction front tires are turned

After performing these pre-entry checks, drivers should unlock the door and enter the vehicle quickly.

The Area Around the Vehicle

Part 2
Lesson Content

Lesson Objective:
Student will be able to identify the obscured areas around the vehicle.

Lesson Content	Materials and Resources
Area Around the Vehicle	
➢ **Video Review 2.2** Duplicate and distribute Video Review 2.2. Students should complete the worksheet as they watch the video.	➢ Video Review 2.2 and Answer Key: The Area Around the Vehicle
➢ **Slides 2.7 and 2.8 – Video 2.2** Discuss the topics in Video 2.2 Play Video 2.2. *The Area Around the Vehicle* (Time: 1 minute, 23 seconds) After viewing, review Video Review 2.2, using Answer Key to gauge student understanding of the video.	➢ Slides 2.7 and 2.8: Video 2.2 T*he Area Around the Vehicle*  

The Area Around the Vehicle	Video Overview 2.2

Video Overview 2.2: The Area Around the Vehicle

Title

The Area Around the Vehicle

Time

1 minute 24 seconds

Topics Covered

1. Demonstration of how to determine the area around the vehicle that cannot be seen.

Video Review

1. Have students complete a video review worksheet as they watch the video.
2. After viewing the video, review the worksheet to gauge students' understanding of the video.

Instructor Notes

The Area Around the Vehicle	Video Review 2.2

Video Review 2.2: The Area Around the Vehicle

Name	Date

1. What does the video demonstrate? _____

_____

_____

2. When does the student place the cone on the ground? _____

_____

_____

3. Which area around the vehicle is the largest? _____

_____

_____

4. How can drivers compensate for this space they cannot see? _____

_____

_____

_____

The Area Around the Vehicle	Video Review 2.2 ANSWER KEY

Video Review 2.2: The Area Around the Vehicle ANSWER KEY

Name	Date

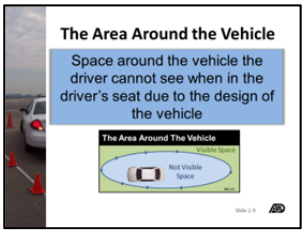
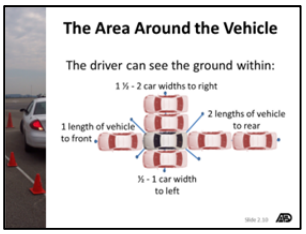
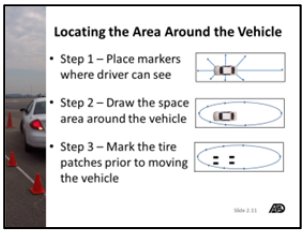
1. What does the video demonstrate?
   Answer: The space around the vehicle the driver cannot see

2. When does the student place the cone on the ground?
   Answer: When the driver can see the student's shoes

3. Which area around the vehicle is the largest?
   Answer: The area behind the vehicle

4. How can drivers compensate for this space they cannot see?
   Answer: By properly adjusting their seat and mirrors and learning techniques to help prevent collisions

The Area Around the Vehicle	**Part 2** Lesson Content

Lesson Content	Materials and Resources
Area Around the Vehicle	
➢ **Fact Sheet 2.2** Duplicate and distribute Fact Sheet 2.2 for students to use as a resource and study guide.	➢ Fact Sheet 2.2: The Area Around the Vehicle
➢ **Slide 2.9 and 2.10** Discuss what the area around the vehicle is and how far the ground the driver can see is from the vehicle. Emphasize that objects in this area can be hidden from the view of the driver because of vehicle design.	➢ Slides 2.9 and 2.10: The Area Around the Vehicle  
➢ **Slide 2.11** Explain the steps involved in locating the area around the vehicle.	➢ Slide 2.11: Locating the Area Around the Vehicle 

The Area Around the Vehicle	Fact Sheet 2.2 Content Information

The Area Around the Vehicle

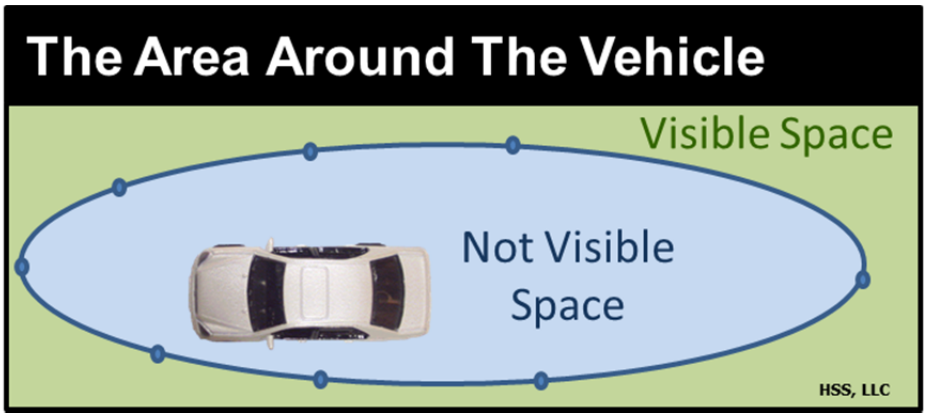
Because of the structural design of the vehicle, the driver is not able to see the spaces immediately around the vehicle. This unnoticeable space consists of the area between the vehicle and the nearest point where the driver can see the ground when seated properly in the driver's seat. This is sometimes referred to as the blind zone.

The blind zone may hide a small child or a retaining wall that is not visible to the driver because of vehicle door height. A driver's field of vision stops where glass and metal meet. Because of these sight limitations drivers may back into an area and strike an object such as a bike, pet, stump or a concrete block.

When properly seated, the driver should be able to see the ground within:

- 12-15 feet or one length of the vehicle to the front,
- 1-1/2-2 car widths to the right side
- 1/2-1 car width to the left side
- 2 lengths of vehicle to the rear (may be nearly 40 feet)

To compensate for this space, it is important to learn where the vehicle's unseen boundaries are, how large they can be, and techniques to help prevent collisions. Proper adjustment of the vehicle's features (mirrors, seat, and head restraint) should help to maximize the drivers view from inside the vehicle in all directions.



The Area Around the Vehicle	**Part 2 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Area Around the Vehicle</u> ➢ **Learning Activity 2.2** After viewing video, conduct learning activity to gauge student understanding of the area around the vehicle that the driver cannot see.	➢ Learning Activity 2.2: The Area Around the Vehicle

Learning Activity 2.2 — The Area Around the Vehicle

Topic	The Area Around the Vehicle

Information

New drivers must learn there is space around a vehicle that they cannot see: objects, traffic, people, etc. when seated behind the wheel. This activity will help to visualize the space.

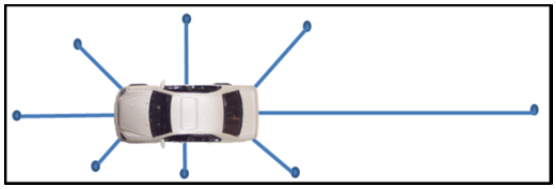
Materials Needed

1. Driver education vehicle
2. 8 traffic cones
3. Chalk

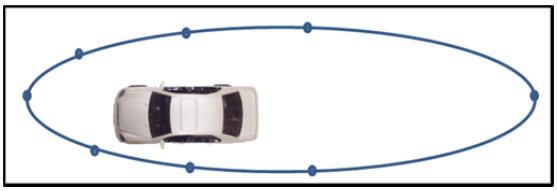
Learning Activity

This activity needs to be completed in a parking lot or range. Four to eight students are needed to assist in this exercise. One student is seated behind the wheel of the vehicle. The other students should position themselves close to the vehicle on either side.

Step 1: Place markers at the point where the driver can see the marker on the ground



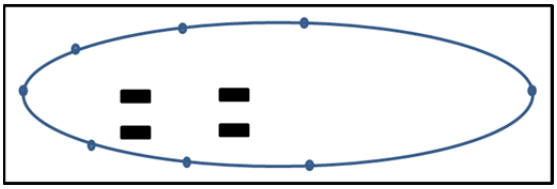
- Starting at the driver's side door instruct the student in the vehicle to wave his hand when he can see the shoes of the student outside the vehicle as he walks slowly away.
- Mark the positions with a cone so that a chalk line can be drawn from one point to another.
- Repeat this process with the other positions around the vehicle.



Step 2: Draw the space area around the vehicle

- Draw the space around the vehicle.

Step 3: Mark the tire patches prior to moving the vehicle

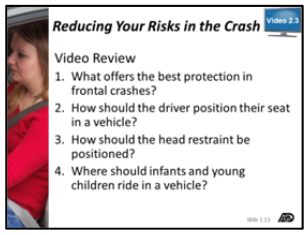


- Mark the tire patches prior to moving the vehicle. The tire patches will indicate an area that is one length of the vehicle to the front, two lengths of the vehicle to the rear, one width of the vehicle to the left and two widths to the right. This space is not visible to the driver.

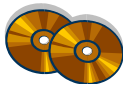
Safety Restraints

Part 3
Lesson Content

Lesson Objective:
Student will demonstrate knowledge of and proper usage of protective devices available to occupants of motor vehicles.

Lesson Content	Materials and Resources
Safety Restraints	
➢ **Video Review 2.3** Duplicate and distribute Video Review 2.3. Students should complete the worksheet as they watch the video.	➢ Video Review 2.3 and Answer Key: Reducing Your Risks in the Crash
➢ **Slides 2.12 and 2.13 – Video 2.3** Discuss the topics covered in Video 2.3. Play Video 2.3 *Reducing Your Risks in the Crash* (Time: 5 minutes 51 seconds) After viewing, review Video Review 2.3, using Answer Key to gauge student understanding of the video.	➢ Slides 2.12 and 2.13: Video 2.3 *Reducing Your Risks in the Crash*  

Safety Restraints	Video Overview 2.3



Video Overview 2.3: Reducing Your Risks in the Crash

Title

Reducing Your Risks in the Crash

Time

9 minutes 30 seconds

Topics Covered

1. How to reduce the risk of injury in a crash by using safety restraints.
2. How to get the maximum benefits from safety restraints.
3. How to use safety restraints properly.
4. Where child passengers should sit in a vehicle.

Video Review

1. Have students complete a video review worksheet as they watch the video.
2. After viewing the video, review the worksheet to gauge students' understanding of the video.

Instructor Notes

Safety Restraints	Video Review 2.3

Video Review 2.3: Reducing Your Risks in the Crash

Name	Date

1. What offers the best protection in frontal crashes? _____

_____

_____

2. How should drivers position their seat in a vehicle? _____

_____

_____

3. How should the head restraint be positioned? _____

_____

_____

4. Where should infants and young children ride in a vehicle? _____

_____

_____

Safety Restraints	Video Review 2.3 ANSWER KEY

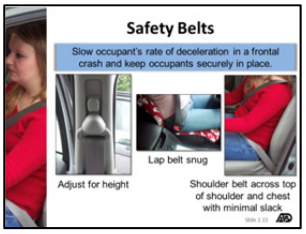
Video Review 2.3: Reducing Your Risks in the Crash ANSWER KEY

1. What offers the best protection in frontal crashes?
   Answer: Air bags and safety belts together.

2. How should drivers position their seat in a vehicle?
   Answer: As far away from the steering wheel as is comfortable for driving, but still be able to reach the pedals and floor.

3. How should the head restraint be positioned?
   Answer: Directly behind and very close to the back of the head, slightly above the ears.

4. Where should infants and young children ride in a vehicle?
   Answer: In the rear or backseat of the vehicle.

Safety Restraints	**Part 3 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Safety Restraints</u>	
➢ **Fact Sheet 2.3** Duplicate and distribute Fact Sheet 2.3 for students to use as a resource and study guide.	➢ Fact Sheet 2.3: Safety Restraints
➢ **Ask students** to name a few safety restraints used in vehicles.	
➢ **Slide 2.14** List the different kinds of safety restraints used in vehicles.	➢ Slide 2.14: Safety Restraints 
➢ **Slide 2.15** Discuss how safety belts protect drivers in a crash, how the safety belt should be worn, how to adjust the safety belt for comfort, and how to sit upright with back against seat with feet on the floor.	➢ Slide 2.15: Safety Belts 
➢ **Slide 2.16** Discuss the purpose of head restraints and the proper adjustment of them.	➢ Slide 2.16: Head Restraints 

Safety Restraints | **Fact Sheet 2.3** Content Information

Safety Restraints

For most people, the term "occupant protection" refers to safety belts, child restraints, or driver and passenger side air bags. In the context of this lesson, the term "occupant protection" is much more inclusive, incorporating technological advances in vehicle integrity in the event of a crash and response capability.

Adults and Teens

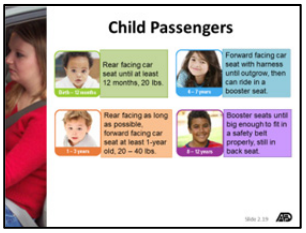
Safety belts

- When properly adjusted, lap and shoulder belts are among the most important safety features in a motor vehicle. Safety belts are designed to help slow the occupant's rate of deceleration in a frontal collision. Safety belts also help keep vehicle occupants securely in place, keeping the driver firmly behind the steering wheel. When drivers wear safety belts properly, drivers will also have added comfort, reducing fatigue to help keep the driver more alert.
- Shoulder belts should be worn across the top of shoulder and chest with minimal slack to distribute force in the event of a crash. The belt should not be twisted, and should not be worn under the arm or behind the back.
- The lap belt should be snug and placed low across the hips after fastening so that the belt will be prevented from riding up the abdomen.
- Adjust center post mounting for height, if vehicle is so equipped, to make the safety belt more comfortable.
- Check safety belt frequently for a snug fit.
- Keep seat back in upright position and sit upright with the driver's back against the seat, with feet on the floor. Improper seating positions, such as slouching, reclining, or resting feet on the dashboard can result in reduced effectiveness of the vehicle's restraint system and, possibly injury.

Head restraints

- Reduce the risk of neck injury caused by whiplash from the impact of a crash.
- Need to be adjusted high enough to make contact with the back of the head, slightly above the ears, within three inches of the back of the head.
- Are used best when the driver remains seated in a normal, upright position and when the driver avoids leaning forward while driving to reduce the chance of injury.

Safety Restraints	**Part 3 continued** Lesson Content

Lesson Content	Materials and Resources
Safety Restraints	
➢ **Slide 2.17** Discuss how air bags work, what the purpose of air bags is, how they can cause minor injuries, and what to do to prevent injuries.	➢ Slide 2.17: Air Bags (Dash and Steering Wheel) 
➢ **Slide 2.18** Discuss where air bags are located in a vehicle (steering wheel, dash area, door panel and seat back).	➢ Slide 2.18: Air Bags (Side Impact Protection) 
➢ **Slide 2.19** Discuss the proper use and precautions necessary when using infant and child car seats. Insert any state specific information pertaining to child car or booster seats.	➢ Slide 2.19: Child Passengers 

Safety Restraints

Fact Sheet 2.3 continued
Content Information

Adults and Teens continued

Air bags (dash and steering wheel)

- Work in conjunction with safety belts and help absorb crash forces to minimize impact to the body.
- Protect against head and chest injuries
- May pose dangers to children 12 and under who are safest riding in the back seat.
- Must inflate very rapidly to be effective, therefore, deploying out of the steering wheel or instrument panel with great force.
- May cause minor injuries with contact.
- Help prevent injuries, provided that the driver adjusts the seat so there is 10 - 12 inches between the driver's chest and the steering wheel.
- Need to be directed at the driver's chest and not the face. To ensure proper adjustment the driver may raise seat or use a wedge-shaped cushion, as well as adjust the steering wheel.

Air bags (side impact protection)

- Over the side doors
- In the sides of the seat
- In the door panel

Children and Youth

- Children 12 and under are safest riding in the back seat.
- **Infants** are safest riding in rear facing car seats until they are at least 12 months old and 20 pounds.
- **Toddlers** who are at least 1-year-old, weighing 20-40 pounds, and can no longer ride rear facing because of height and weight can ride in forward facing child car seats.
- **Children** age 4 – 7 should ride in forward facing child car seats with a harness until they reach the height or weight limit. Once they outgrow their car seat they can ride in a booster seat or other appropriate child restraint.
- **Older Children** age 8 – 12 should ride in a booster seat until they are big enough to fit in a safety belt properly.
- Any seat must be installed and used according to the manufacturer's instructions and vehicle owner's manual.
- Lower Anchors and Tethers for Children (LATCH) System consists of attachments on the child car seat and a set of lower or upper tether anchors in the vehicle to hold the child seat safely in place.

Safety Restraints	**Part 3 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Safety Restraint Myths and Facts</u> ➢ **Fact Sheet 2.3** Discuss the myths and facts of occupant protection devices using Fact Sheet 2.3.	➢ Fact Sheet 2.3: Safety Restraint Myths and Facts

Safety Restraints

Fact Sheet 2.3 continued
Content Information

Myths and Facts

1. **MYTH: Belts are uncomfortable or inconvenient.**

   FACT: Once the use of safety belts becomes a habit, there is no discomfort or inconvenience. Furthermore, this discomfort and inconvenience does not compare to the serious discomfort and inconvenience of a motor vehicle crash injury.

2. **MYTH: Unbelted people are safer if thrown clear of the car in a crash.**

   FACT: Unbelted people are more likely to be severely injured or killed if ejected.

3. **MYTH: If the car catches fire or is submerged in water, belted people cannot get out.**

   FACT: Less than one-half of one percent of collisions involves fire or submersion. In the event of a fire involved crash, the belted occupant should detach the belt and escape the vehicle. In the event of a vehicle submersion, belted occupants will have more stabilized bodies if they need to open a door or break a window.

4. **MYTH: The driving distance is not far or driving slowly will prevent injuries.**

   FACT: Motor vehicle crashes are the leading cause of preventable death and injury in the United States. Crashes cause about 32,700 deaths a year, affecting any age and type of driver.

5. **MYTH: Air bags are enough; drivers don't need safety belts.**

   FACT: Air bags are a supplemental form of protection and most are designed to deploy only in moderate to severe frontal crashes. Safety belts should always be used, even in a vehicle with air bags.

6. **MYTH: Belts can hurt occupants in a crash.**

   FACT: When used properly, safety belts reduce the risk of fatal injury to front seat passenger car occupants by 45% and reduce the risk of moderate to critical injury by 50%.

7. **MYTH: Cautious drivers with good reflexes won't get into a crash.**

   FACT: Crashes cause about 32,700 deaths a year.

Safety Restraints	**Part 3 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Advances in Vehicle Safety for Today and Tomorrow</u> ➢ **Slide 2.20** Discuss new advances in vehicle safety found in today's vehicles.	➢ Slide 2.20: New Advances in Vehicle Safety Found Today 

Safety Restraints

Fact Sheet 2.3 continued
Content Information

Advances in Vehicle Safety for Today and Tomorrow

Many new technological advances in vehicle integrity are available in cars to lessen the events of a crash for today's drivers. Some advances are uncommon or will be used in the future.

New Advances in Vehicle Safety Found Today

- **All-wheel drive** – has the capability to apply power to all four of the wheels for added pulling power and in low traction situations.
- **Antilock brakes** – prevents wheels from locking up and skidding during hard braking by monitoring the speed of each wheel and automatically pulsing the brake pressure on any wheel where skidding is detected.
- **Electronic stability control (ESC)** – monitors traction loss and steering angle and automatically applies one or more of the brakes to keep the vehicle on course. ESC helps to prevent the sideways skidding and loss of control that can lead to rollovers, helping drivers to maintain control during emergency maneuvers when their vehicles otherwise might spin out.
- **Telematics (i.e. OnStar)** – uses cellular communications and GPS technology to plot directions, contact and guide 911 operators after a crash. The system can also remotely unlock doors, and track a stolen vehicle.
- **Tire pressure monitoring** – alerts the driver when a tire's air pressure is dangerously low.

Safety Restraints	**Part 3 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>New Advances in Vehicle Safety for Tomorrow</u> ➢ **Slides 2.21 and 2.22** Discuss new advances in vehicle safety for tomorrow or the future. At this point in the instruction, students should have completed all the information related to safety restraints.	➢ Slides 2.21 and 2.22: New Advances in Vehicle Safety for Tomorrow  

Safety Restraints

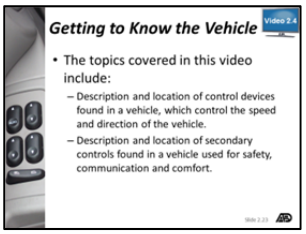
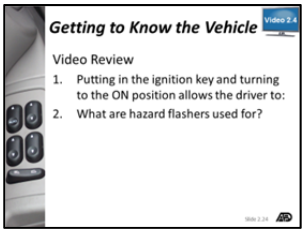
Fact Sheet 2.3 continued
Content Information

New Advances in Vehicle Safety for Tomorrow

- **Active head restraints** – automatically moves forward upon impact to catch the head and increase neck protection.
- **Adaptive cruise control** – uses radar to monitor and regulate the distance between vehicles. If a crash is imminent, the system will brake, deploy airbags, and tighten safety belts.
- **Adaptive headlights** – illuminates the area around a corner with a 15-degree range of motion.
- **Advanced airbags** – isolates and protects various body parts and, in some systems, deploy at different depths or velocity depending on the occupant's size and position, the severity of the crash, and use of the clasped or unclasped safety belt.
- **Advanced safety belt pretensioners** – tenses up when a collision is imminent and are sometimes paired with seats that automatically adjust for increased crash protection.
- **Fatigue warning** – monitors the driver's eye blink rate and blink duration and alerts the driver if it detects inattention or drowsiness.
- **Forward collision warning systems** – alerts the driver when the vehicle is getting too close to a vehicle in front. Some systems are able to brake the vehicle if the driver doesn't stop or steer clear.
- **Lane departure warning systems** – signals to a driver with alarm or flashing light when the driver's vehicle drifts from its lane by capturing an image of the highway and the lines on either side of the vehicle.
- **Park assist and back over prevention** – helps drivers park and back the vehicle by using cameras and radar to look for objects located behind a vehicle and by alerting drivers to hazards. Some systems are capable of automatically parallel parking the vehicle.
- **Side view assist** – uses sensors to monitor the side of the vehicle for vehicles approaching blind spots. A visual alert appears on the side view mirrors if a vehicle is detected. An audible alert activates if the driver signals a lane change when there is a vehicle in the blind spot.

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Part 4** Lesson Content

Lesson Objective:
Student will identify and describe the location, function and operation of safety, communication, comfort, convenience, and control devices, as well as control and information device symbols found in a passenger vehicle in preparation for starting the vehicle.

Lesson Content	Materials and Resources
Safety, Communication, Comfort, Convenience, Control Devices and Symbols	
➢ **Video Review 2.4** Duplicate and distribute Video Review 2.4. Students should complete the worksheet as they watch the video.	➢ Video Review 2.4: Getting to Know the Vehicle and Answer Key
➢ **Slides 2.23 and 2.24 – Video 2.4** Discuss the topics covered in Video 2.4. Play Video 2.4 *Getting to Know the Vehicle* (Time: 7 minutes 59 seconds) After viewing, review Video Review 2.4, using Answer Key to gauge student understanding of the video.	➢ Slides 2.23 and 2.24: Video 2.4 *Getting to Know the Vehicle*  
➢ **Fact Sheet 2.4** Duplicate and distribute Fact Sheet 2.4 for students to use as a resource and study guide.	➢ Fact Sheet 2.4: Safety, Communication, Comfort, Convenience and Control Devices

Getting to Know the Vehicle — Video Overview 2.4

Video Overview 2.4: Getting to Know the Vehicle

Title

Getting to Know the Vehicle

Time

7 minutes 59 seconds

Topics Covered

1. Description and location of control devices found in a vehicle, which control the speed and direction of the vehicle.
2. Description and location of secondary controls found in a vehicle used for safety, communication and comfort.

Video Review

1. Have students complete a video review worksheet as they watch the video.
2. After viewing the video, review the worksheet to gauge students' understanding of the video.

Instructor Notes

Getting to Know the Vehicle	Video Review 2.4

Video Review 2.4: Getting to Know the Vehicle

Name	Date

1. Putting in the ignition key and turning to the ON position allows the driver to:

   _____

   _____

2. When may you want to use lower gears while driving? _____

   _____

   _____

3. Which pedal is on the left side? _____
4. What are hazard flashers used for? _____

   _____

   _____

5. What is the purpose of the speedometer and odometer? _____

   _____

   _____

Getting to Know the Vehicle	Video Review 2.4 ANSWER KEY

Video Review 2.4: Getting to Know the Vehicle ANSWER KEY

1. Putting in the ignition key and turning to the ON position allows the driver to:
   Answer: Operate the electrical equipment and check the warning lights

2. When may you want to use lower gears while driving?
   Answer: On long or steep downgrades or when driving with heavy loads

3. Which pedal is on the left side?
   Answer: The brake pedal

4. What are hazard flashers used for?
   Answer: Lights at the front and the rear of the car flash simultaneously, giving attention to the vehicle when it is pulled to the side of the road because of a mechanical problem or when driving at very slow speeds

5. What is the purpose of the speedometer and odometer?
   Answer: Speedometer - how fast we are going, odometer - the total mileage traveled by the vehicle

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Part 4 continued** Lesson Content

Lesson Content	Materials and Resources
<u>Safety, Communication, Comfort, Convenience and Control Devices</u> ➢ **Slides 2.25 through 2.29** Discuss the location, purpose and use of safety, communication, comfort, convenience and control devices found in a vehicle. Emphasize the importance of becoming familiar with the location and operation of devices and the increased risk of using controls while driving.	➢ Slides 2.25 through 2.29: Safety, Communication, Comfort and Convenience Devices     

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Fact Sheet 2.4** Content Information

Safety, Communication, Comfort, Convenience and Control Devices

Drivers should become familiar with the location and operation of vehicle devices and should practice using the instruments and controls while the vehicle is parked so the instruments can be located and utilized while driving. Familiarity with devices prevents drivers from taking their eyes off the road ahead for more than a few seconds at a time. It is important that drivers know the location, purpose and operation of the various controls, safety, comfort and convenience devices when driving a motor vehicle. However, it is essential that drivers understand the increased risk associated with directing attention to a task other than driving. Inattentiveness lowers one's level of alertness directed to driving and typically has an adverse effect on steering.

Safety, communication, comfort and convenience devices

- Mirrors
- Safety belts
- Head restraint
- Horn
- Turn signals
- Door locks
- Hazard flasher
- Windshield wipers & washers
- Headlights
- Hood release
- Trunk release
- Heater, defroster, and air conditioner
- Seat adjustment controls

Operating vehicle control devices

- Steering
- Steering wheel adjustment
- Gear selector lever
- Parking brake
- Cruise/Speed control
- Ignition switch
- Accelerator pedal
- Brake pedal
- Clutch pedal

Safety, Communication, Comfort, Convenience, Control Devices and Symbols — **Fact Sheet 2.4 continued** Content Information

Safety, Communication, Comfort and Convenience Devices

Mirrors - Adjustment of the mirrors can be done inside and outside in vehicles equipped with remote controlled outside mirrors. These controls may be located on the left side of the dash, the driver's side arm rest, or center console. However, no matter how the mirrors are adjusted, there are areas that still cannot be seen, requiring that drivers turn their heads to check prior to making a move to the left or right.

Safety belts - While safety belts protect occupants in a crash, they serve an equally important role of keeping the driver firmly in place behind the steering wheel, allowing better control of the vehicle. For maximum protection, the safety belt should be positioned as low on the hips as possible. After fastening the belt, grasp the shoulder belt and pull upward to take up the slack in the belt across hips. Make sure that all passengers do the same.

Head restraint - All new vehicles are equipped with head restraints (front seats and some rear seats) to help reduce whiplash injuries when struck from the rear. Some vehicles are equipped with head restraints that can be adjusted up or down to position the restraint behind the middle of the occupants head. Other vehicles are equipped with head restraints that are built into the top of the seat and cannot be adjusted.

Horn - The horn is generally operated by pressing a button located on a steering wheel cross bar, or on the pad on the lower half of the steering wheel above or below the air bag cover.

Turn signal lever - Device used to communicate which direction you plan to turn. Located on the left side of the steering column, the lever is moved up to signal a movement to the right and down for a movement to the left. While the signal will cancel after most turns, the driver may have to cancel the signal manually after a slight turn or a lane change.

Door locks - In vehicles equipped with manual locks, each door has its own locking device. An additional master control is usually located on the driver side arm rest in vehicles with electric/power door locks. Child safe rear door locks are an option with the device located on the inside of the rear doors.

Hazard flasher - The purpose of the hazard flashers is to warn other drivers of a problem and to increase the driver's awareness of the presence of the vehicle. The switch for the hazard lights is usually located on the top or right side of the steering column or on the dash. When operated, both front and rear turn signal lights flash simultaneously.

Windshield wipers and washers - This control is frequently located on the turn signal lever. Two switches are often involved. One controls the speed of the wipers and a second controls the washer fluid.

Safety, Communication, Comfort, Convenience, Control Devices and Symbols — **Fact Sheet 2.4 continued** Content Information

Headlights - This switch may be located on the left side of the instrument panel, on the same lever as the turn signal, or on a separate lever located on the right side of the steering column. The switch controls the headlights, parking lights, taillights, side marker lights and license plate lights. In many vehicles, a separate switch controls the instrument panel, dome lights (interior lights), rheostat (changes the intensity of the dash background lighting), and the automatic headlights.

Hood release – Lever used to release the hood of the vehicle. A second latch located under the front edge of the hood must be released to open the hood. This lever is usually located on the left side of the driver's compartment under the dash. In some vehicles it is located under, or just to the left of the steering column.

Trunk release - An option on many vehicles, the release may be a lever or button located on the floor just to the left of the driver's seat, on the driver's door, or in the glove box. The release button can also be found on the key fob.

Heater, defroster and air conditioner - These control switches are located in a cluster on the instrument panel. Some vehicles have a separate switch located on the instrument panel that operates a rear window defroster.

Seat adjustment controls - If manually controlled, the adjustment lever to move the seat forward or backward is typically located at the lower front, left or right side of the driver's seat. A second lever or knob is located on the left side of the seat in some vehicles, allowing the driver to change the angle of the seat back. In vehicles with electric power seats, the controls are usually located on the lower left side of the driver's seat, or in a control cluster located on the driver's side arm rest.

Safety, Communication, Comfort, Convenience, Control Devices and Symbols — **Fact Sheet 2.4 continued** Content Information

Operating Vehicle Control Devices

Regardless of whether the driver's hands grip the wheel in a balanced position on the upper or lower half of the wheel, before one hand releases the wheel to adjust any information, comfort or control device, the hand not performing the action should be moved to the 7-8 or 4-5 o'clock position. It is critical to remember that when operating any vehicle control, comfort, or communication device that the driver's attention must not be diverted from the path of travel for more than an instant. Controls perform the same function in each vehicle. However, location and characteristics vary from one type of vehicle to another.

Steering — The steering wheel is always turned in the direction the driver wants the vehicle to move, whether moving forward or in reverse. However, the amount of steering input and energy needed will vary according to the type of steering, to the direction of movement to the front or rear, to the number of turns to lock, to the degree of power assist and to the speed of travel.

Steering wheel adjustment — In some vehicles, the angle of the steering wheel is controlled by a lever located on the left or right side of the steering column. Other vehicles permit the driver to change the angle of the steering wheel by adjusting the steering column. An adjustment lever located on the bottom side of the steering column permits the driver to raise or lower the steering column to achieve a better steering wheel angle. When the driver is properly seated, the top of the steering wheel should be no higher than the top of the driver's shoulder.

Gear selector lever— This lever allows the driver to shift the transmission and select a gear. In a vehicle with an automatic transmission, the gear selector is located either on the steering column or on a console located between the front seats. In a vehicle with a manual transmission, the gear selector is located on the center console, on the floor to the right of the driver or, in older vehicles, on the right side of the steering column.

Parking brake — This brake is sometimes mistakenly referred to as an emergency brake. The primary purpose of the parking brake is to hold a vehicle in place when it is parked and to protect the transmission. The parking brake may be either a foot operated pedal located to the far left side of the driver under the dash, a hand-operated lever located to the right of the steering column, or to the right of the driver on the floor or center console. To set a foot-operated parking brake, push down firmly on the pedal. Depending on the vehicle, one of two methods is used to release the brake. In some vehicles push down on the pedal until a click is heard and then release the pedal. In other vehicles, a brake release lever is located above the foot pedal on the underside of the dashboard. To set a floor or console mounted parking brake, the driver can simply pull back firmly on the lever. To release the brake, the driver can press the button located on the end of the lever with his/her thumb and lower the lever.

Safety, Communication, Comfort, Convenience, Control Devices and Symbols — **Fact Sheet 2.4 continued** Content Information

Cruise/speed control - This device allows a driver to select and travel at a set speed without having to keep his/her foot on the accelerator. The controls are located either on the steering wheel or a stem on the left or right side of the steering column. The control options are as follows: on/off, set/accelerate, coast and resume. Speed control can be cancelled at any time by pressing the brake pedal or touching the off switch.

Ignition switch - This switch locks the steering wheel and the gear selector. It also enables the driver to start and turn off the engine or use the radio. It is located on the right side of the steering column or on the dashboard on some vehicles. Some newer vehicles also offer keyless, or push-to-start, ignition systems using a key fob.

Accelerator pedal - This foot-operated pedal is suspended from the firewall on the right side of the driver's foot position. The driver controls speed by adjusting pressure on the pedal.

Brake pedal - The brake pedal is located to the left of the accelerator. The driver slows the vehicle by applying downward pressure. The degree of deceleration is determined by the amount of pressure the driver applies to the brake pedal and the friction between the tires and road surface.

Clutch pedal – In manual transmission vehicles this pedal is located to the left of the brake pedal. The driver pushes it with the left foot to disengage the transmission.

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Part 4 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Safety, Communication, Comfort and Convenience Devices</u> ➢ **Worksheet 2.4.1** Duplicate and distribute Worksheet 2.4.1 Have each student take this worksheet home to determine whether his/her family's or friend's vehicle is equipped with the safety, communication, comfort and convenience devices listed on the worksheet and if so equipped, where the control levers, switches or buttons are located. Review the student answers to the worksheet.	➢ Worksheet 2.4.1: Safety, Communication, Comfort and Convenience Devices

Safety, Communication, Comfort, Convenience, Control Devices and Symbols — Worksheet 2.4.1

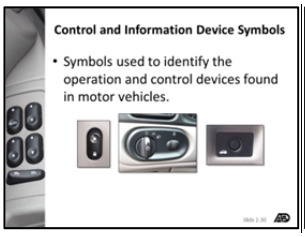
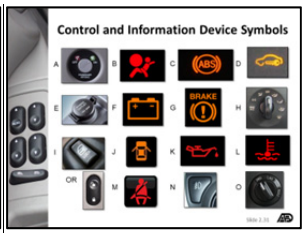
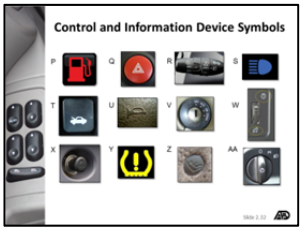
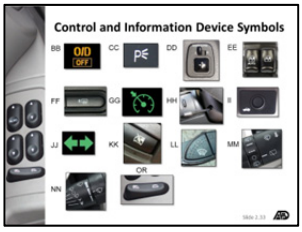
Safety, Communication, Comfort and Convenience Devices

Name	Date

Directions: Use this worksheet to determine whether your family's or friend's vehicle is equipped with the following Safety, Communication, Comfort and Convenience devices, and if so equipped, where the control levers, switches or buttons are located.

Equipped	Yes/No	Location of control lever or switch
Tilt steering wheel		
Automatic transmission		
Manual transmission		
Parking brake		
Cruise control		
Mirror controls		
Hazard flasher		
Headlights		
Instrument panel light switch		
Hood release		
Trunk release		
Seat control manual		
Seat control electric		
Separate turn indicator lever		
Washer/wiper lever		
Air bag cut off switch		
Electric door locks		
Childproof rear door locks		
Power windows		
4-wheel drive		

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Part 4 continued** Lesson Content

Lesson Content	Materials and Resources
<u>Control and Information Device Symbols</u>	
➢ **Slides 2.30 through 2.33** Identify and discuss the symbols used in motor vehicles that identify the various control, convenience, safety and communication devices with attention to their safe and proper use.	➢ Slide 2.30 through 2.33: Control and Information Device Symbols    
➢ **Worksheet 2.4.2** Duplicate and distribute Worksheet 2.4.2. Throughout the instruction on control and information device symbols, students should be completing the worksheet. Allow some time during these lessons for students to do this.	➢ Worksheet 2.4.2 and Answer Key: Control and Information Device Symbols
➢ **Worksheet 2.4.3** Duplicate and distribute Worksheet 2.4.3. Throughout the instruction on control and information device symbols, students should be completing the worksheet. Allow some time during these lessons for students to do this. Review the correct answers to the worksheet.	➢ Worksheet 2.4.3 and Answer Key: Instrument Panel

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	Fact Sheet 2.4 continued Content Information

Control and Information Device Symbols

- Symbols are used to identify the operation and control devices found in motor vehicles
- Drivers must learn how to operate safely the various safety, communication and control devices found in motor vehicles
- These symbols can be found on the **instrument panel**, which is located on the dashboard, behind the steering wheel and displays gauges and lights which provide important information about the vehicle's safety and operational condition.
- They can also be found in other areas throughout the vehicle.

Control and Information Device Symbols	
A. Air-bag on/off switch *	U. Horn
B. Air-bag readiness *	V. Ignition switch
C. Anti-lock braking warning light*	W. Instrument panel dimmer switch (rheostat)
D. Antitheft system*	X. Lighter
E. Auxiliary power point* (cigarette lighter)	Y. Low tire pressure warning light*
F. Battery charging warning light	Z. Lower anchor for car seat*
G. Brake warning light	AA. Master lighting switch
H. Climate control system	BB. Overdrive off*
I. Door lock/unlock	CC. Parking lights
J. Door open warning light*	DD. Power side view mirrors *
K. Engine oil pressure	EE. Power windows *
L. Engine temperature gauge	FF. Rear window defroster *
M. Fasten safety belts	GG. Speed/cruise control *
N. Fog lamps *	HH. Tilt steering wheel *
O. Four-wheel drive low/high *	II. Trunk release *
P. Fuel gauge	JJ. Turn signal indicator
Q. Hazard flashers	KK. Window lock out
R. Headlamp control switch	LL. Windshield defroster
S. High beam headlights	MM. Windshield washer
T. Hood release	NN. Windshield wipers
	* Optional equipment

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Worksheet 2.4.2** Page 1

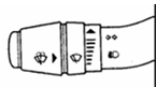
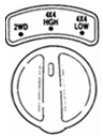
Control and Information Device Symbols

Name	Date

Directions: Match the control and information device symbol in the pictures below to the word associated with it.

A. Air-bag on/off switch *
B. Air-bag readiness *
C. Anti-lock braking warning light*
D. Antitheft system*
E. Auxiliary power point* (cigarette lighter)
F. Battery charging warning light
G. Brake warning light
H. Climate control system
I. Door lock/unlock
J. Door open warning light*
K. Engine oil pressure
L. Engine temperature gauge
M. Fasten safety belts
N. Fog lamps *
O. Four-wheel drive low/high *
P. Fuel gauge
Q. Hazard flashers
R. Headlamp control switch
S. High beam headlights
T. Hood release

*Optional equipment

1.  _____	**2.**  _____	**3.**  _____	**4.**  _____	**5.**  _____
6.  _____	**7.**  _____	**8.**  _____	**9.**  _____	**10.**  _____
11.  _____	**12.**  _____	**13.**  _____	**14.**  _____	**15.**  _____
16.  _____	**17.**  _____	**18.**  _____	**19.**  _____	**20.**  _____

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Worksheet 2.4.2** Page 1 ANSWER KEY

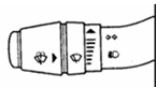
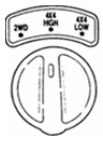
Control and Information Device Symbols ANSWER KEY

Name	Date

Directions: Match the control and information device symbol in the pictures below to the word associated with it.

A. Air-bag on/off switch *
B. Air-bag readiness *
C. Anti-lock braking warning light*
D. Antitheft system*
E. Auxiliary power point* (cigarette lighter)
F. Battery charging warning light
G. Brake warning light
H. Climate control system
I. Door lock/unlock
J. Door open warning light*
K. Engine oil pressure
L. Engine temperature gauge
M. Fasten safety belts
N. Fog lamps *
O. Four-wheel drive low/high *
P. Fuel gauge
Q. Hazard flashers
R. Headlamp control switch
S. High beam headlights
T. Hood release

*Optional equipment

1.  _____I_____	2.  _____G_____	3.  _____B_____	4.  _____Q_____	5.  _____L_____
6.  _____E_____	7.  _____H_____	8.  _____P_____	9.  _____A_____	10.  _____M_____
11.  _____R_____	12.  _____C_____	13.  _____T_____	14.  _____J_____	15.  _____F_____
16.  _____O_____	17.  _____K_____	18.  _____N_____	19.  _____D_____	20.  _____S_____

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Worksheet 2.4.2** Page 2

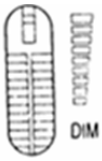
Control and Information Device Symbols

Name	Date

Directions: Match the control and information device symbol in the pictures below to the word associated with it.

U. Horn
V. Ignition switch
W. Instrument panel dimmer switch (rheostat)
X. Lighter
Y. Low tire pressure warning light*
Z. Lower anchor for car seat*
AA. Master lighting switch
BB. Overdrive off*
CC. Parking lights
DD. Power side view mirrors *
EE. Power windows *
FF. Rear window defroster *
GG. Speed/cruise control *
HH. Tilt steering wheel *
II. Trunk release *
JJ. Turn signal indicator
KK. Window lock out
LL. Windshield defroster
MM. Windshield washer
NN. Windshield wipers

*Optional equipment

21.  _____	**22.**  _____	**23.**  _____	**24.**  _____	**25.**  _____
26.  _____	**27.**  _____	**28.**  _____	**29.**  _____	**30.**  _____
31.  _____	**32.**  _____	**33.**  _____	**34.**  _____	**35.**  _____
36.  _____	**37.**  _____	**38.**  _____	**39.**  _____	**40.**  _____

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Worksheet 2.4.2** Page 2 ANSWER KEY

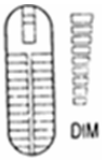
Control and Information Device Symbols ANSWER KEY

Name	Date

Directions: Match the control and information device symbol in the pictures below to the word associated with it.

U. Horn
V. Ignition switch
W. Instrument panel dimmer switch (rheostat)
X. Lighter
Y. Low tire pressure warning light*
Z. Lower anchor for car seat*
AA. Master lighting switch
BB. Overdrive off*
CC. Parking lights
DD. Power side view mirrors *
EE. Power windows *
FF. Rear window defroster *
GG. Speed/cruise control *
HH. Tilt steering wheel *
II. Trunk release *
JJ. Turn signal indicator
KK. Window lock out
LL. Windshield defroster
MM. Windshield washer
NN. Windshield wipers

*Optional equipment

21.  **_____EE_____**	**22.**  **_____W_____**	**23.**  **_____NN_____**	**24.**  **_____FF_____**	**25.**  **_____U_____**
26.  **_____GG_____**	**27.**  **_____LL_____**	**28.**  **_____Z_____**	**29.**  **_____II_____**	**30.**  **_____CC_____**
31.  **_____X_____**	**32.**  **_____HH_____**	**33.**  **_____MM_____**	**34.**  **_____AA_____**	**35.**  **_____JJ_____**
36.  **_____BB_____**	**37.**  **_____Y_____**	**38.**  **_____DD_____**	**39.**  **_____KK_____**	**40.**  **_____V_____**

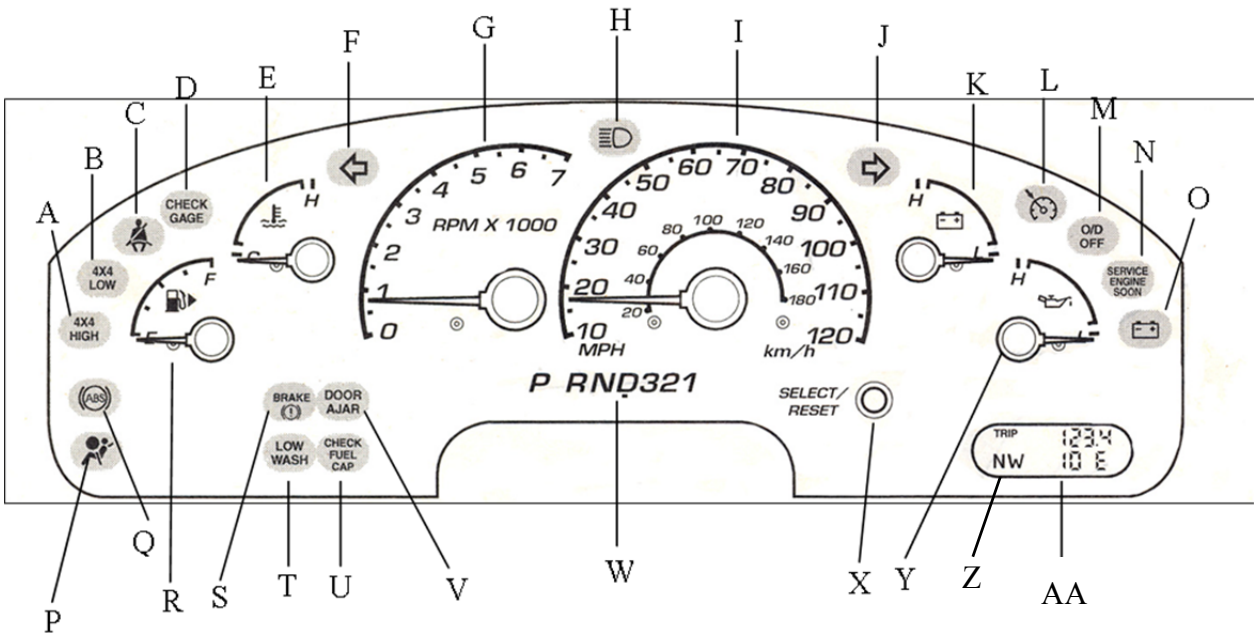
Safety, Communication, Comfort, Convenience, Control Devices and Symbols

Worksheet 2.4.3

Instrument Panel

Name	Date

Directions: Match the instruments and gauges in the instrument panel to the word associated with it below.



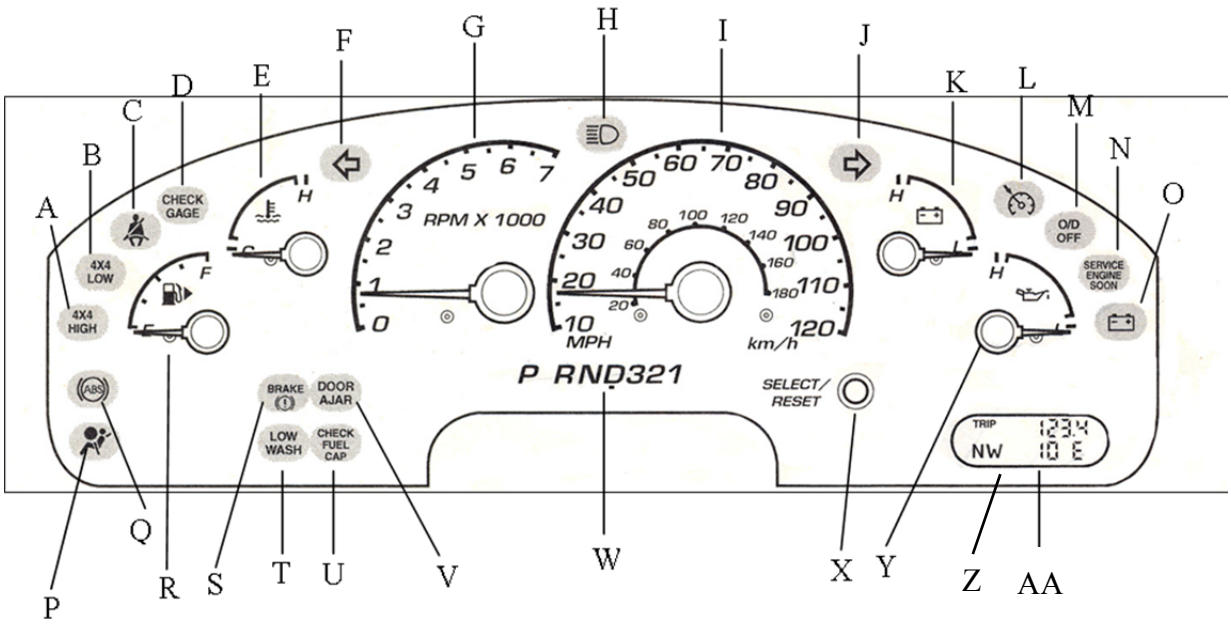
	Windshield Washer Fluid		Door Ajar		Headlight Beam Indicator
	Cruise Control		Safety Belt		Check Gauge
	Battery Voltage Gauge		Oil Pressure Gauge		Left Turn Indicator
	Temperature Gauge		Battery Warning Light		Right Turn Indicator
	Gear Selection Indicator		4WD Low		Anti-lock Brake System
	Tachometer		Speedometer MPH/km/h		4WD High
	Trip Odometer		Airbag		Overdrive On/Off
	Check Fuel Cap		Brake		Service Engine Soon
	Select/Reset Odometer		Fuel Gauge		Compass

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Worksheet 2.4.3** ANSWER KEY

Instrument Panel ANSWER KEY

Name	Date

Directions: Match the instruments and gauges on the pictures in the instrument panel to the word associated with it below.



T	Windshield Washer Fluid	V	Door Ajar	H	Headlight Beam Indicator
L	Cruise Control	C	Safety Belt	D	Check Gauge
K	Battery Voltage Gauge	Y	Oil Pressure Gauge	F	Left Turn Indicator
E	Temperature Gauge	O	Battery Warning Light	J	Right Turn Indicator
W	Gear Selection Indicator	B	4WD Low	Q	Anti-lock Brake System
G	Tachometer	I	Speedometer MPH/km/h	A	4WD High
AA	Trip Odometer	P	Airbag	M	Overdrive On/Off
U	Check Fuel Cap	S	Brake	N	Service Engine Soon
X	Select/Reset Odometer	R	Fuel Gauge	Z	Compass

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Part 4 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Control and Information Device Symbols</u> ➢ **Learning Activity 2.4.1** To engage students and assess their understanding of control and information device symbols, use the dashboard BINGO activity.	➢ Learning Activity 2.4.1: Dasboard BINGO

Learning Activity 2.4.1 — Dashboard BINGO

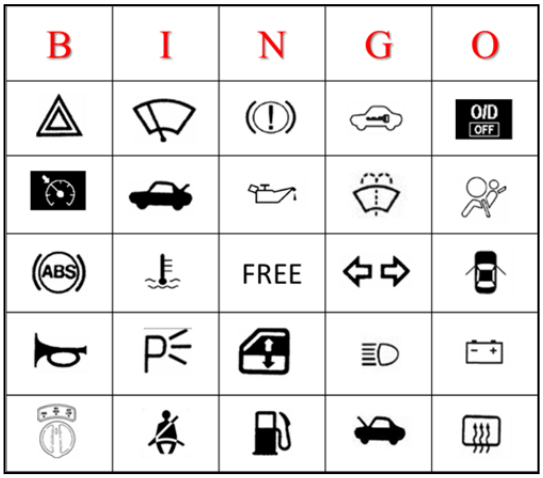
Topic	**Control and Information Device Symbols**

Information

New drivers must learn to identify the dashboard symbols and the information that symbols provide. To enable students to recognize these symbols quickly and to gain a better understanding of their function, instructors can utilize Dashboard BINGO as a quick and easy way for students to learn these symbols.

Materials Needed

1. Using the concept of a BINGO game, the instructor should distribute a game card to each student. A class set of cards is provided on the CD.
2. Provide each student with some type of card marker such as buttons or beads.
3. For a longer lasting product, use card stock instead of paper. Laminated card stock is quite durable.
   a. If laminated cards are used, a wet erase marker can be used to mark the cards.
   b. Wet erase marker is easily removed with a damp paper towel.



Learning Activity

1. Write the names for the dashboard symbols on papers placed in a box for "calling out" to the students.
2. Prior to the start of the game, determine how the winner will be decided: whether the winner will have a horizontal, vertical and/or diagonal Bingo, a small or large picture frame Bingo, or a blackout, when all the squares on the card have been filled.
3. When a symbol is called out, the student will cover the appropriate square with a marker.
4. Once a student is deemed a winner, the student must successfully identify the symbols on the line, picture frame, or blackout BINGO being played.
5. If the student cannot successfully identify all of the symbols, allow play to continue until the next student calls out BINGO and identifies the symbols.
6. As the game is played, students will become more proficient at symbol identification by constantly identifying the symbols to the class.

Safety, Communication, Comfort, Convenience, Control Devices and Symbols	**Part 4 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Control and Information Device Symbols</u> ➢ **Learning Activity 2.4.2** To engage students and assess their understanding of control and information device symbols, use the "What Am I?" activity. At this point in the instruction, students should have completed all the information related to safety, communication, comfort, convenience and control devices.	➢ Learning Activity 2.4.2: What Am I?

Learning Activity 2.4.2 — What Am I?

Topic	**Control and Information Device Symbols**

Information

New drivers must learn to identify the various devices and symbols found in the vehicle and the information that they provide. This activity is a good way to enable students to gain a better understanding of the function of various devices and to identify the symbols of a vehicle.

Materials Needed

1. A list of vehicle devices and symbols, with their descriptions, is provided on the next page.
2. Paper and pencil.

Learning Activity

1. Have students write numbers for the amount of symbols the instructor will cover.
2. Read each description from the List of Descriptions on the next page. Give students time to determine what device is being described and write their answers next to the appropriate number on a sheet of paper.
3. This activity may be also be completed by dividing students into groups and assigning points for each correct answer.

Learning Activity 2.4.2

What Am I? Activity
List of Descriptions

What Am I? List of Descriptions

1. I automatically turn on at the rear of the vehicle when the driver shifts to reverse. Tell me my color. *Answer: Back up lights / White*

2. I have five or more settings. I clean the windshield, front or back, by moving back and forth, sweeping rain, snow, and washer fluid. *Answer: Wipers*

3. I am activated by the driver when the car is disabled on the roadside. *Answer: Emergency Flashers / Hazard Lights*

4. I would come on and flash if there were a problem with the supplemental restraint system. *Answer: Air Bag light*

5. I am the lever that allows the driver to shift the gears of the transmission. *Answer: Selector Lever / Gear shifter*

6. I inform the driver if the electrical current to the engine and all accessories is normal or abnormal. *Answer: Battery / Alternator light*

7. I would sound a buzzer and flash a dashboard light when the driver forgets to put me on. *Answer: Safety Belt*

8. I allow a parent to secure a child seat with more than the regular safety belt straps. *Answer: Upper / Lower Tether Straps*

9. When I am set or engaged I keep the vehicle from rolling even if the driver or passengers are not in the vehicle. *Answer: Parking Brake / Emergency Brake*

10. I allow the driver to use me to adjust his position to reach the pedals under the dash area. *Answer: Seat Adjustment Lever*

11. I inform the driver how fast the vehicle is moving. *Answer: Speedometer*

12. I have a snowflake on my button that turns me off and on. *Answer: Air Conditioner*

13. I alert another person. You must push the hub of the steering wheel to activate me. *Answer: Horn*

Learning Activity 2.4.2

What Am I? Activity
List of Descriptions

What Am I? List of Descriptions

14. I make it possible for the driver to check the traffic scene to the rear without turning around and looking. *Answer: Rearview mirror*

15. I hold the passengers or driver upright in the vehicle in the event of sudden, hard braking, a swerve, or a crash. *Answer: Safety Belts*

16. When the driver activates me, I keep backseat passengers or kids from opening the windows. *Answer: Window lock out*

17. I tell how far the vehicle has travelled in its entire life or on a short trip. There are sometimes two of me. One can be reset to 0, and the other cannot. *Answer: Odometer / Trip Odometer*

18. I allow the driver to change the intensity of the dash background lighting. *Answer: Rheostat*

19. I lubricate the engine on the inside. I am brown and should be changed every 3000 to 4000 miles. There is a light on the dash to indicate any problems with my system. *Answer: Oil*

20. I protect the front seat passengers head from striking the side window or the side of the vehicle in the event of a side crash. *Answer: Side Air Bags / Curtain Air Bags*

21. I have five positions. The driver would use a key to turn me and start or turn off the engine. *Answer: Ignition Switch*

22. I tell the driver if the engine is overheating. *Answer: Temperature Gauge / Light*

23. I indicate the gas level in the fuel tank when the vehicle is on. *Answer: Fuel Gauge*

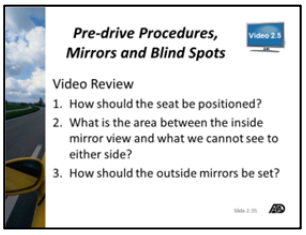
24. Part of me is red and part of me is blue. I indicate cold or hot in the passenger compartment. *Answer: Temperature Control*

25. I allow the driver to maintain a desired speed so the driver can remove the foot from the accelerator pedal. *Answer: Cruise Control*

Pre-drive Procedures, Mirrors and Blind Spots

Part 5
Lesson Content

Lesson Objective:
Student will describe the pre-drive procedures used after entering the vehicle and demonstrate knowledge of enhanced mirror settings and mirror usage.

Lesson Content	Materials and Resources
Pre-drive Procedures, Mirrors and Blind Spots	
➢ **Video Review 2.5** Duplicate and distribute Video Review 2.5. Students should complete the worksheet as they watch the video.	➢ Video Review 2.5 and Answer Key: Pre-drive Procedures, Mirrors and Blind Spots
➢ **Slides 2.34 and 2.35 – Video 2.5** Discuss the topics covered in Video 2.5. Play Video 2.5. *Pre-drive Procedures, Mirrors and Blind Spots* (Time: 5 minutes 27 seconds) After viewing, review Video Review 2.5 to gauge student understanding of the video.	➢ Slides 2.34 and 2.35: Video 2.5 *Pre-drive Procedures, Mirrors and Blind Spots*  

Pre-drive Procedures, Mirrors and Blind Spots — Video Overview 2.5

Video Overview 2.5: Pre-drive Procedures, Mirrors and Blind Spots

Title

Pre-drive Procedures, Mirrors and Blind Spots

Time

5 minutes 27 seconds

Topics Covered

1. Pre-drive procedures used after entering the vehicle, including adjusting seat, head restraint and mirrors, fastening safety belt and locking doors.
2. How to properly adjust your side view and rearview mirrors.

Video Review

1. Have students complete a video review worksheet as they watch the video.
2. After viewing the video, review the worksheet to gauge students' understanding of the video.

Instructor Notes

Pre-drive Procedures, Mirrors and Blind Spots	Video Review 2.5

Video Review 2.5: Pre-drive Procedures, Mirrors and Blind Spots

Name	Date

1. How should the seat be positioned? _____

_____

_____

_____

2. Where should the inside rearview mirror be aimed? _____

_____

_____

3. What is the area between the inside mirror view and what we cannot see to either side?

_____

4. How should the outside mirrors be set? _____

_____

_____

_____

5. How should the head restraint be positioned? _____

_____

_____

Pre-drive Procedures, Mirrors and Blind Spots	Video Review 2.5 ANSWER KEY

Video Review 2.5: Pre-drive Procedures, Mirrors and Blind Spots ANSWER KEY

1. How should the seat be positioned?
   Answer: Steering wheel the proper distance from the body, at least a foot from the body, right foot should reach behind the brake pedal and knee should be slightly bent

2. Where should the inside rearview mirror be aimed?
   Answer: Aimed at the middle of the back window and just see the bottom of the window

3. What is the area between the inside mirror view and what we cannot see to either side?
   Answer: Blind spots

4. How should the outside mirrors be set?
   Answer: left side - rest head against the closed window and set mirror to barely show edge of vehicle; right side - reach as far to the right as we can stretch and set mirror to barely show edge of vehicle

5. How should the head restraint be positioned?
   Answer: Behind the head, not low at the neck, just above the ears

Pre-drive Procedures, Mirrors and Blind Spots

Part 5 continued
Lesson Content

Lesson Content	Materials and Resources
Pre-drive Procedures ➢ **Fact Sheet 2.5** Duplicate and distribute Fact Sheet 2.5 for students to use as a resource and study guide. ➢ **Slide 2.36** Discuss the pre-drive procedures used after entering the vehicle.	➢ Fact Sheet 2.5: Pre-drive Procedures ➢ Slide 2.36: Pre-drive Procedures 

Pre-drive Procedures, Mirrors and Blind Spots

Fact Sheet 2.5
Content Information

Pre-drive Procedures

1. Lock doors
2. Place key in ignition
3. Adjust seat for best control so that the top of steering wheel is no higher than the top of the driver's shoulders. There should be 10 - 12 inches between the driver's chest and the steering wheel. Drivers should use a wedge seat cushion and/or pedal extensions for maximum field of view, if needed.
4. Adjust inside and outside mirrors for maximum field of view.
5. Fasten and adjust safety belt and confirm that all passengers have fastened their safety belts.
6. Adjust head restraints.

Pre-drive Procedures, Mirrors and Blind Spots	Part 5 continued Lesson Content

Lesson Content	Materials and Resources
Mirrors and Blind Spots ➢ **Slide 2.37** Discuss traditional mirror settings. Explain that this setting may be more appropriate for trucks, vans and SUV type vehicles when towing or backing in tight areas. Emphasize that traditional mirror settings limit the driver's visibility to the sides of the vehicle.	➢ Slide 2.37: Traditional Mirror Settings 

Pre-drive Procedures, Mirrors and Blind Spots

Fact Sheet 2.5 continued
Content Information

Mirror Settings and Usage

Traditional Mirror Settings

- Outside mirrors are set so that the driver can see the back edges of the vehicle.
- May be more appropriate for trucks, vans and SUV type vehicles when towing or backing in tight areas. Passenger vehicle side view mirrors are not designed for backing the vehicle.

Disadvantages:

- Limits driver's visibility to the sides of vehicle

Settings:

- Adjust the left side view mirror to see the left edge of the vehicle and adjust the right side view mirror to see the right edge of the vehicle.

Left Mirror Using Traditional Mirror Setting

Left mirror set using traditional mirror settings. The back edge of the vehicle is visible. Limits driver's visibility to the sides of the vehicle.

Right Mirror Using Traditional Mirror Setting

Right mirror set using traditional mirror settings. The back edge of the vehicle is visible. Limits driver's visibility to the sides of the vehicle.

Pre-drive Procedures, Mirrors and Blind Spots	**Part 5 continued** Lesson Content

Lesson Content	Materials and Resources
Mirrors and Blind Spots ➢ **Slide 2.38** Discuss the advantages of using enhanced mirror settings. Illustrate the difference between traditional mirror settings and enhanced mirror settings. Emphasize that enhanced mirror settings reduce blind spots and provide greater visibility to the side than traditional mirror settings. ➢ **Slide 2.39** Explain how to set the mirrors using enhanced mirror settings.	➢ Slide 2.38 Enhanced Mirror Settings  ➢ Slide 2.39 Setting Your Mirrors 

Pre-drive Procedures, Mirrors and Blind Spots | **Fact Sheet 2.5 continued** Content Information

Mirror Settings and Usage

Enhanced Mirror Settings

Advantages:

- With the side mirrors more slightly angled, the driver will gain increased visual coverage of blind spots. This setting provides the greatest visibility to the side of the vehicle and reduces blind spots.
- Turning to look can be uncomfortable and unsafe in multiple lanes.
- Brief glances to mirrors takes less time than turning head to side.
- Night glare is eliminated until vehicle moves into mirror blind zone.

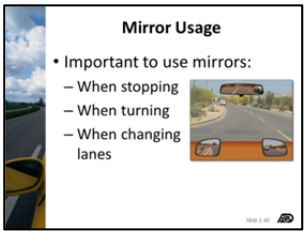
Setting Your Mirrors:

- Inside mirror becomes primary mirror for view to the rear.
- Outside mirrors should be adjusted to reduce blind spots and to provide maximum visibility to the side and rear on both sides of the vehicle.
- To set the left side mirror, the driver must rest head against the closed window and set the mirror to barely show the rear edge of the vehicle.
- To set the right side mirror, the driver should lean to the right so the head is directly below the rearview mirror or above the center console. The mirror should be adjusted the same way as the left side, so that the edge of the right side of your vehicle can barely be seen.
- The driver will not see the left and right sides of the vehicle when glancing in the outside mirrors; however, this adjustment adds 12 to 16 degrees additional viewing area to each side of the vehicle.

Concerns:

- Keep in mind vehicles visible in side mirrors will be alongside your vehicle.
- Side mirrors are used in conjunction with primary mirror to view areas to side and rear.
- If the driver needs to see alongside the car, a movement of the head to the left window or to the center of the vehicle will give the traditional view as well as the enhanced mirror view.
- This setting may not work on all vehicles such as cargo vans with no rear window; therefore, the traditional mirror setting may be appropriate.

Pre-drive Procedures, Mirrors and Blind Spots	Part 5 continued Lesson Content

Lesson Content	Materials and Resources
Pre-drive Procedures, Mirrors and Blind Spots ➢ **Slide 2.40** Discuss how to use the mirrors when driving in traffic. Emphasize that when a driver makes adjustments in speed or position, the location, size and speed of any vehicles to the sides and/or rear must be considered, and the use of mirrors is intended to assist in detecting other vehicles. Explain how to use mirrors when stopping and turning. Explain how to check mirror blind areas.	➢ Slide 2.40: Mirror Usage 

Pre-drive Procedures, Mirrors and Blind Spots

Fact Sheet 2.5 continued
Content Information

Mirror Settings and Usage

Mirror Usage

Any time speed or position adjustments are necessary, the driver must consider the location, size and speed of vehicles to the sides and/or rear. While a vehicle is in motion, mirror usage is intended to assist in detection, not in gathering detail. Drivers cannot afford to divert attention from the path ahead for more than a second. Mirror checks can answer three important questions: Are there vehicles present? If yes, what is the location? If yes, what is the size and relative speed of detected vehicles?

When stopping:

- Anytime a driver prepares to slow or stop, the driver's eyes should scan first to the rear view mirror.
- Flash the brake lights to alert any following driver.
- Direct attention to the rear view mirror until two cars have stopped behind the vehicle. Use multiple, quick glances, not a long stare.
- Check the mirrors quickly and allow for extra space ahead, increasing the ability to steer out of the lane if a vehicle from the rear appears to be traveling too fast to stop in time.

When turning:

- When the driver prepares to turn, mirrors should be checked before any change of speed or position is made to enable assessment and control of rear and side space.
- The driver should assess the space to the rear as soon as the turn is completed, and then assess the space to the front.

When changing lanes:

- When a driver is attempting to change lanes, mirrors should be checked before any change of speed or position is made to enable assessment and control of rear and side space. Also it is important to check over the shoulder in the mirror blind spots as well.

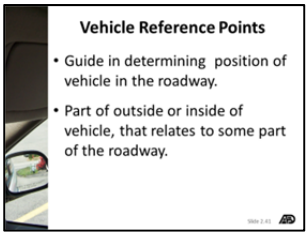
Checking mirror blind areas

- Regular side view mirrors, even when angled out an additional 12 to 16 degrees (enhanced setting), do not provide sufficient information to safely make a movement to the side without first making a mirror blind spot check.
- A mirror blind spot check involves making a quick eye movement over the shoulder to the left or right in the direction of intended vehicle movement.

Vehicle Reference Points

Part 6
Lesson Content

Lesson Objective:
Student will demonstrate knowledge of standard and personal vehicle reference points to know where the vehicle is positioned in relation to the roadway.

Lesson Content	Materials and Resources
Vehicle Reference Points	
➢ **Fact Sheet 2.6** Duplicate and distribute Fact Sheet 2.6 for students to use as a study guide and resource.	➢ Fact Sheet 2.6: Vehicle Reference Points
➢ **Slide 2.41** Discuss vehicle reference points. Explain to students that they can develop personal reference points for their own vehicle by learning to use different parts of their own vehicle as guides.	➢ Slide 2.41: Vehicle Reference Points 
➢ **Worksheet 2.6** Duplicate and distribute Worksheet 2.6. Throughout the instruction on vehicle reference points, students should be completing the worksheet. Allow some time during these lessons for students to do this.	➢ Worksheet 2.6 and Answer Key: Vehicle Reference Points

Vehicle Reference Points

Fact Sheet 2.6
Content Information

Vehicle Reference Points

You cannot see the actual position of the vehicle in relation to the roadway because the driver's view of the road is blocked by the dashboard and the hood of the vehicle. You can use reference points to serve as guides in determining the position of the vehicle in the roadway.

A reference point is some part of the outside or inside of the vehicle, viewed from the driver's seat, which relates to some part of the roadway. Reference points can be developed for the front, side or rear to help you know where the vehicle is located on the roadway.

A standard reference point is the point on the vehicle that is similar for most drivers. This could be a side view mirror, a hood ornament, or the center of the hood. Once drivers learn standard reference points, they can develop their own personal reference points.

A personal reference point is a variation of a standard reference point for a driver's personal vehicle. Drivers will learn to use different parts of the vehicle, such as wiper blades, door handles, or rearview mirrors as guides. When drivers begin to practice parking maneuvers, they will learn which parts of the vehicle to use as personal reference points. Drivers will be able to line up these points with parts of other vehicles to help execute the maneuvers.

When attempting to discover a reference point, drivers should first use the "standard" reference point. If the "standard" reference point was accurate, continue to use it. If any "standard" reference point does not work, drivers should make note of "personal" reference points. These personal reference points will not be more than a few inches away from the "standard" reference point. Once a personal reference point is determined the driver needs to remember the correct picture for future use.

Vehicle Reference Points	Worksheet 2.6 Page 1

Identifying Reference Points

Name	Date

Directions: Draw the standard reference points onto the vehicles below as requested.

1. **Front Reference Point**

2. **Rear Reference Point**

Vehicle Reference Points	Worksheet 2.6 Page 1 ANSWER KEY

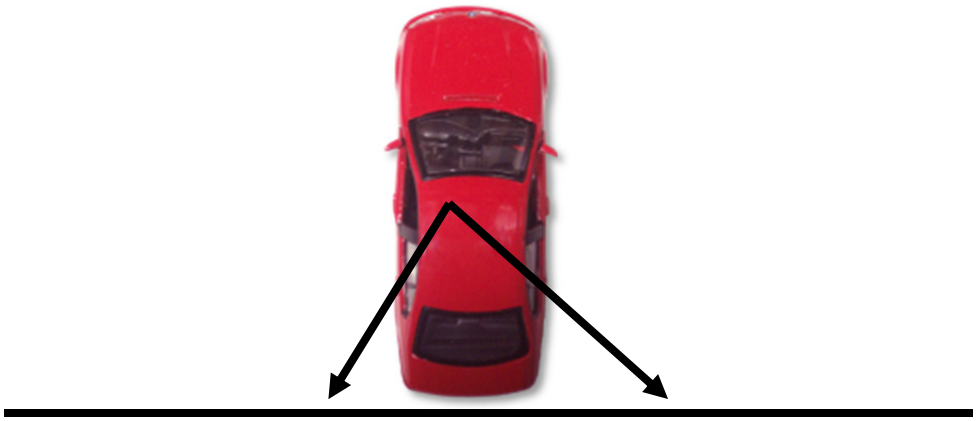
Identifying Reference Points ANSWER KEY

Name	Date

Directions: Draw the standard reference points onto the vehicles below as requested.

1. **Front Reference Point**

2. **Rear Reference Point**



Vehicle Reference Points

Worksheet 2.6
Page 2

Identifying Reference Points

Name	Date

Directions: Draw the standard reference points onto the vehicles below as requested.

3. Right Side Reference Point 3-6 inches from the right

4. Right Side Reference Point 3 feet from the right

5. Left Side Reference Point 3-6 inches from the left

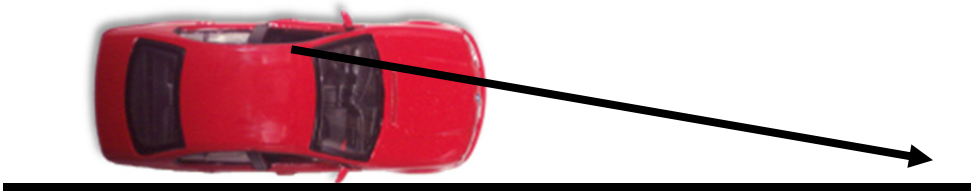
Vehicle Reference Points	Worksheet 2.6 Page 2 ANSWER KEY

Identifying Reference Points ANSWER KEY

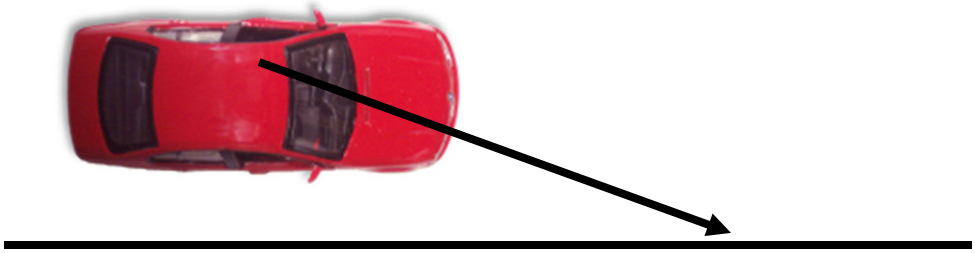
Name	Date

Directions: Draw the standard reference points onto the vehicles below as requested.

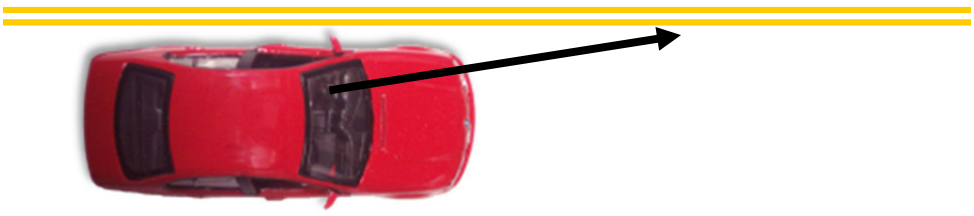
3. Right Side Reference Point 3-6 inches from the right



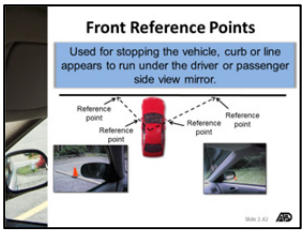
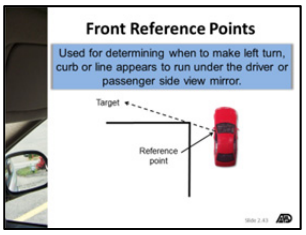
4. Right Side Reference Point 3 feet from the right



5. Left Side Reference Point 3-6 inches from the left



Vehicle Reference Points	Part 6 continued Lesson Content

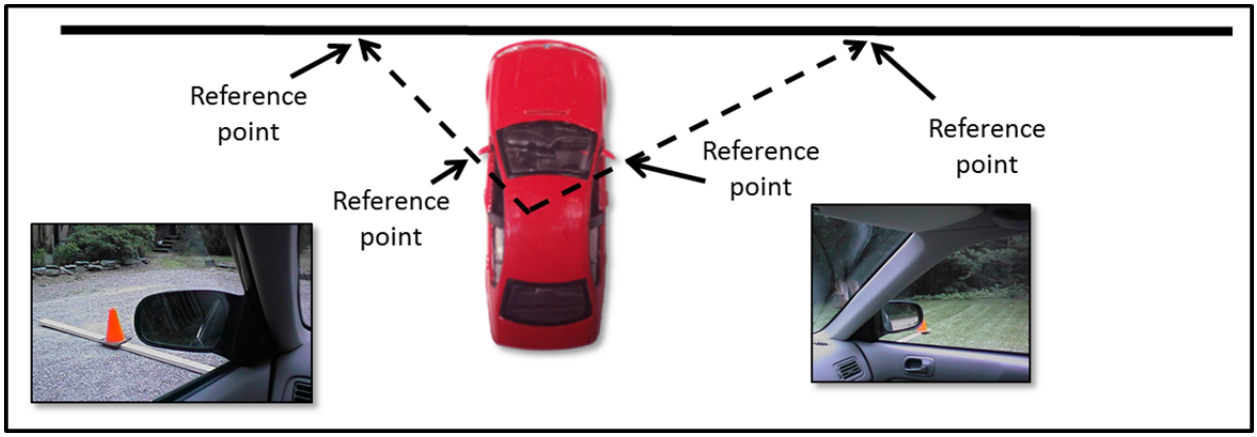
Lesson Content	Materials and Resources
Vehicle Reference Points ➢ **Slides 2.42 through 2.43** Discuss front vehicle reference points. Explain to students where the reference points are located to help when stopped at a stop line or intersections, when perpendicular parking, and when placing the front of the vehicle even with a crosswalk line or curb.	➢ Slides 2.42 through 2.43: Front Vehicle Reference Points  

Vehicle Reference Points | **Fact Sheet 2.6 continued** Content Information

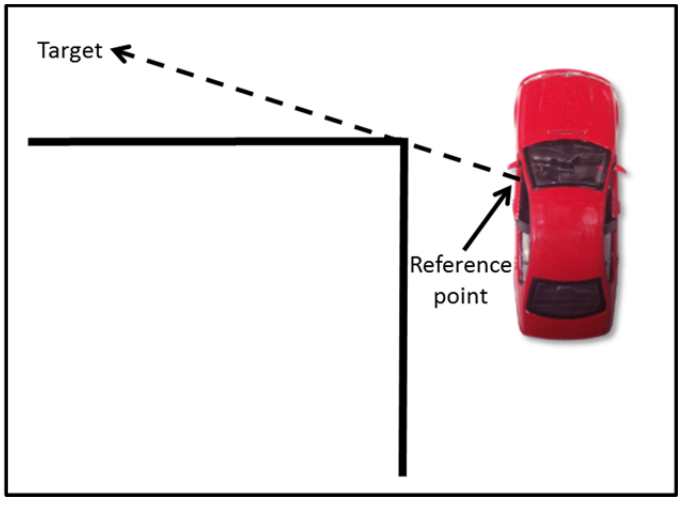
Vehicle Reference Points

Front Vehicle Reference Points

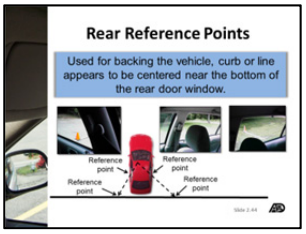
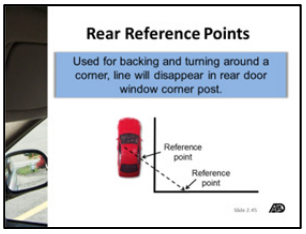
Drivers can develop reference points to determine where the front end of the vehicle is at intersections, where the car should be in a stopped position, where the car should stop in perpendicular parking, or when placing the front of the vehicle even with a line or curb. The curb or line should appear to run under the driver or passenger side view mirror. The front vehicle reference point is a reference point to know where to stop the vehicle.



Drivers can develop reference points to determine when the front end of your vehicle is a few feet beyond the curb line and where you should begin to turn the steering wheel at intersections. The curb or line should appear to run under the driver side view mirror, and the driver can see where to go without the driver's vision cutting across the curb line. This is the point at which the driver should begin to turn the steering wheel to make the left turn.



Vehicle Reference Points	**Part 6 continued** Lesson Content

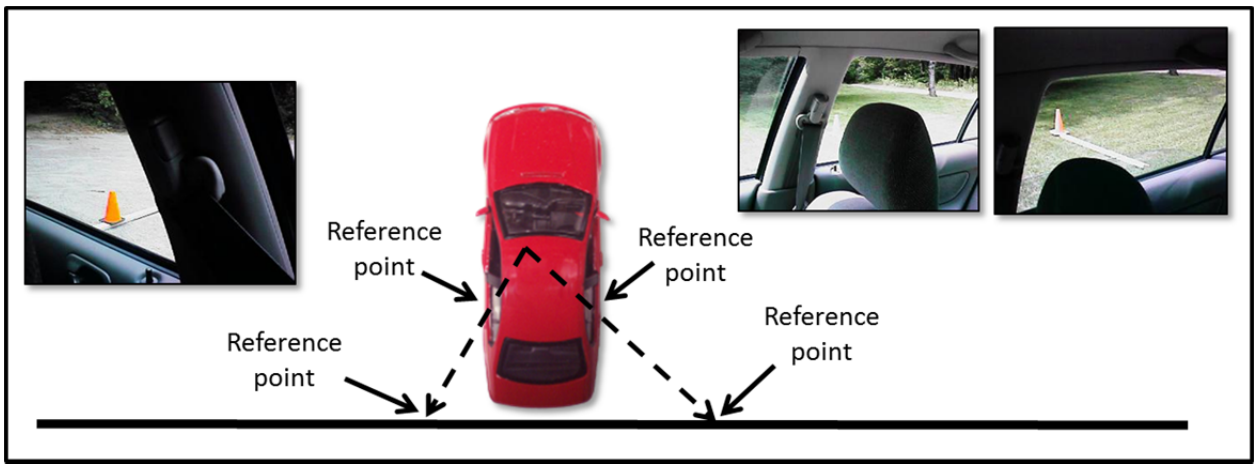
Lesson Content	Materials and Resources
Vehicle Reference Points ➢ **Slides 2.44 through 2.45** Discuss rear vehicle reference points. Explain to students where the reference point is located to help when backing, perpendicular parking or placing rear of the vehicle at a line or curb.	➢ Slides 2.44 through 2.45: Rear Vehicle Reference Points  

Vehicle Reference Points | **Fact Sheet 2.6 continued** Content Information

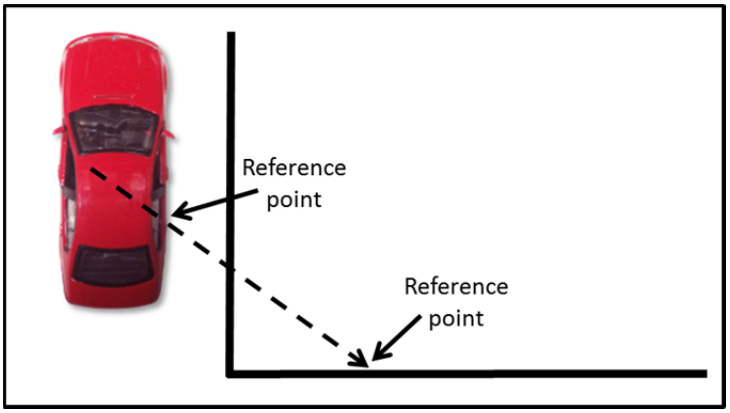
Vehicle Reference Points

Rear Vehicle Reference Points

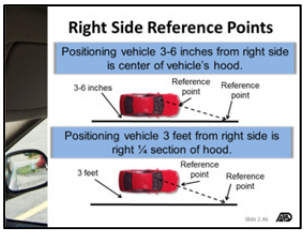
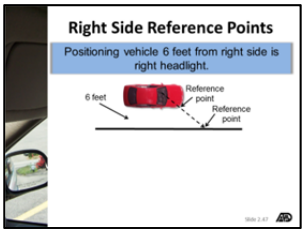
To determine when the rear of your vehicle is 3-6 inches away from a line when backing, perpendicular parking or placing the rear of the vehicle to a line or curb, the driver can develop reference points. When the driver turns his/her head and looks over the left shoulder, the curb or line should appear to be centered near the bottom of the rear door window.



To determine when the rear of the vehicle is three feet away from a line when backing and turning, drivers can develop reference points. When a driver turns his/her head and looks over the right shoulder, he/she will see the line disappear in the rear window corner post. This is the point where drivers should begin turning the steering wheel when backing around a corner.



Vehicle Reference Points	Part 6 continued Lesson Content

Lesson Content	Materials and Resources
Vehicle Reference Points ➢ **Slides 2.46 through 2.47** Discuss right side reference points. Explain to students where the reference point is located when curb parking on the right side or to place the vehicle 3-6 inches, 3 feet or 6 feet from a white line or curb.	➢ Slides 2.46 through 2.47: Right Side Vehicle Reference Points  

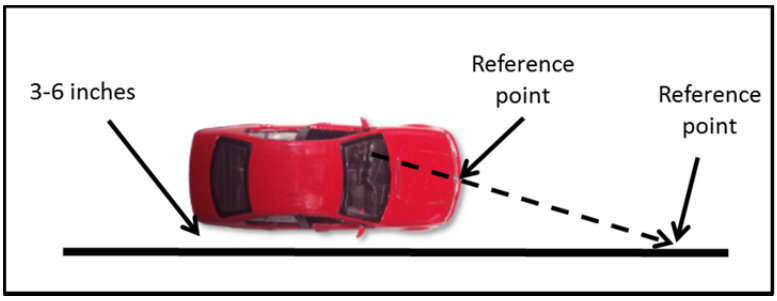
Vehicle Reference Points

Fact Sheet 2.6 continued
Content Information

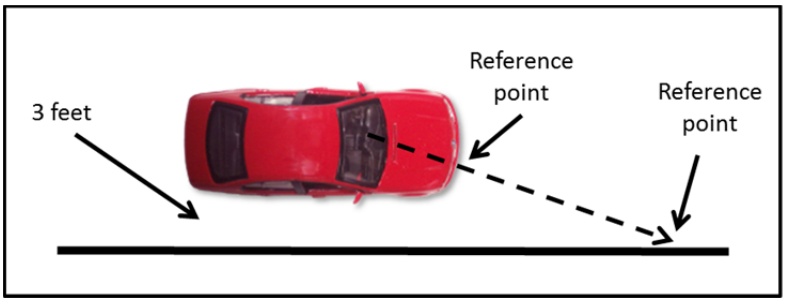
Vehicle Reference Points

Right Side Vehicle Reference Points

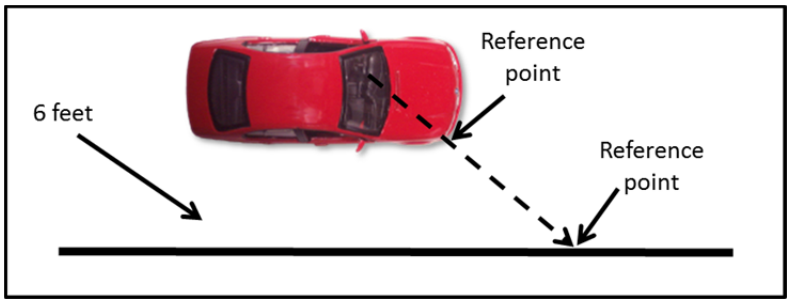
Drivers can develop reference points to determine where the right side of the vehicle is positioned when curb parking on the right side or when placing the vehicle 3-6 inches from a white line or curb. The line of sight reference is to align the center of the vehicle to the curb or the edge line of the roadway.



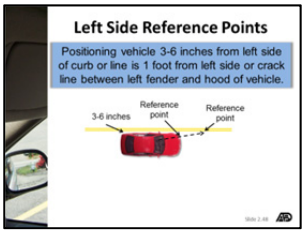
To determine when the right side of the vehicle is three feet from the curb or line, the line of sight reference is to align the right ¼ section of the hood to the curb or the edge line of the roadway.



To determine when the right side of your vehicle is six feet from the curb or line, the line of sight reference is to align the right headlight to the curb or the edge line of the roadway.



Vehicle Reference Points	Part 6 continued Lesson Content

Lesson Content	Materials and Resources
Vehicle Reference Points ➢ **Slide 2.48** Discuss left side reference points. Explain to students where the reference point is located when curb parking on the left side or to place the vehicle 3-6 inches from a yellow line or left curb.	➢ Slide 2.48: Left Side Vehicle Reference Points 

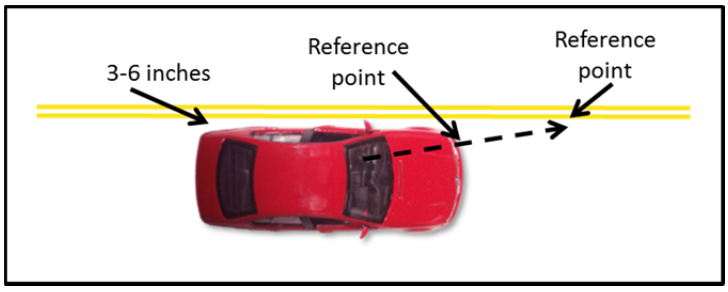
Vehicle Reference Points

Fact Sheet 2.6 continued
Content Information

Vehicle Reference Points

Left Side Vehicle Reference Points

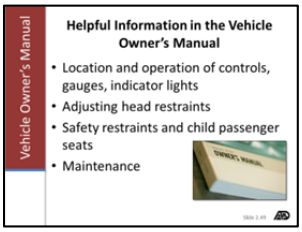
Drivers can develop reference points to determine where the left side of the vehicle is when curb parking on the left side or when placing the vehicle 3-6 inches from a white line, curb, double solid yellow centerline, or broken centerline. The line of sight reference is about one foot from the left side or the crack line between the left fender and the hood of your vehicle to the curb or left side of the vehicle.



Vehicle Owner's Manual

Part 7
Lesson Content

Lesson Objective:
Student will identify the purpose and use of the vehicle owner's manual.

Lesson Content	Materials and Resources
Vehicle Owner's Manual ➢ **Fact Sheet 2.7** Duplicate and distribute Fact Sheet 2.7 for students to use as a study guide and resource. ➢ **Slide 2.49** Describe the purpose of the vehicle owner's manual. Emphasize that drivers should read the vehicle owner's manual before driving the vehicle to ensure familiarity with controls and maintenance requirements. Explain what information is in the vehicle owner's manual. Explain where the manual should be kept. At this point in the instruction, students should have completed all the information related to the vehicle's owner manual.	➢ Fact Sheet 2.7: The Vehicle Owner's Manual ➢ Slide 2.49: Helpful Information in the Vehicle Owner's Manual 

Vehicle Owner's Manual

Fact Sheet 2.7
Content Information

The Vehicle Owner's Manual

The owner's manual is a valuable resource for understanding the operation and maintenance of a vehicle. Drivers should read the owner's manual carefully before driving. The manual will provide information to ensure familiarity with controls and maintenance requirements assisting you in the safe operation of your vehicle.

The owner's manual contains helpful information on the following topics:

- **Location and operation of controls, gauges, indicator lights –** Controls, gauges and indicator lights function the same for most vehicles, but they are not in the same location for all vehicles; therefore, it is important to read the owner's manual to become familiar with the location of the controls and devices specific to each vehicle so that drivers can operate them without being distracted from the driving task.

- **Adjusting head restraints –** A vehicle's head restraint is important for guarding against whiplash neck injuries that often accompany a rear-end collision. Restraints need to be high enough to cushion the head above the top of the spine. Many vehicles' head restraints adjust for height. It is important to read your owner's manual to see how to adjust and release the head restraints for your vehicle.

- **Safety restraints and child passenger seats** – The owner's manual gives information on where safety restraints are located in the vehicle, how to use them properly, and how to install child passenger seats properly.

- **Maintenance –** The owner's manual gives advice on what should be serviced and when. It is the driver's responsibility to make sure that the scheduled maintenance, as well as general maintenance, is performed. The manual also provides the driver with information on how to troubleshoot the vehicle, how to add fluids, change light bulbs, and check tire pressure.

Manuals should be kept in an accessible, protected place in your vehicle, either in the glove compartment, center console, or in the trunk. Many companies offer online access to the owner's manual in addition to the hard copy manual.

Unit Review and Test	Part 8 Lesson Content

Lesson Objective:

Student will evaluate their knowledge of the content presented in Unit 2 through review questions, key word matchup worksheet and unit test.

Lesson Content	Materials and Resources
Review Questions ➢ **Review Questions** Ask review questions to summarize discussion on Unit 2.	➢ Unit 2 Review Questions

Unit 2 Review Questions

1. What should you check for outside of the vehicle?
   Answer: broken glass, body damage, leaks, objects, children and pets, tires

2. If parked on the street, how should you approach the driver's door?
   Answer: Key/key fob in hand from the front of the vehicle

3. The driver should be able to see the ground within _____ to the front?
   Answer: 12 to 15 feet or one length of the vehicle to the front

4. How can you compensate for the space you cannot see from the driver's seat?
   Answer: Learn where the unseen boundaries exist to help prevent collisions and adjust the vehicle's features to maximize your view from the vehicle in all directions.

5. How should your safety belt be properly adjusted?
   Answer: Snug across hips and flat across the chest and shoulder. No slack or twist.

6. How many inches away from the steering wheel should you be and why?
   Answer: 10 inches, to allow for the air bag deployment area.

7. What is the purpose of the parking brake?
   Answer: to hold a vehicle in place while parked and protect the transmission

8. Which way do you move the turn signal lever to turn left?
   Answer: down

9. What should you do before driving (7 procedures)?
   Answer: Lock doors, place key in ignition, adjust seat, adjust mirrors, fasten safety belt, adjust head restraints and assure passengers are buckled.

10. What are two advantages of using enhanced mirror settings?
    Answer: turning to look can be uncomfortable and unsafe, reduces blind spots

11. Where is the standard front reference point located?
    Answer: Under the driver or passenger side view mirror

12. What is the purpose of the vehicle owner's manual?
    Answer: Ensures familiarity with controls and maintenance requirements

Unit Review and Test	**Part 8 continued** Lesson Content
Lesson Content	**Materials and Resources**
<u>Words to Know Review</u> ➢ **Fact Sheet 2.8** Duplicate and distribute Fact Sheet 2.8. Use the definitions page as a resource for teaching and for the students as a resource and study guide. ➢ **Worksheet 2.8** Duplicate and distribute. Have students complete the worksheet. Review the answers.	➢ Fact Sheet 2.8: Unit 2 Words to Know Definitions Page ➢ Worksheet 2.8 and Answer Key: Unit 2 Words to Know Matchup

Unit 2 Words to Know Definitions Page

Fact Sheet 2.8
Content Information

Accelerator – Foot-operated pedal suspended from the firewall on the right side of the driver's foot position. Speed is controlled by adjusting pressure on the pedal.

Air bags – A safety device that automatically inflates upon impact in a frontal and/or side collision to prevent occupants from striking the vehicle's interior. Air bags work in conjunction with safety belts and protect against head and chest injuries.

Area around your vehicle – Space the driver cannot see when in the driver's seat because of the structural design of the vehicle. Sometimes referred to as the blind zone.

Body position – The position of the driver in the driver's seat. Drivers should sit upright with the back against the seat and feet on the floor. The seat back should be in the upright position.

Brake pedal – Located to the left of the accelerator. The driver slows the vehicle by applying downward pressure. How much and how rapidly the vehicle slows is determined by how much pressure the driver applies to the brake pedal and the friction between the tires and road surface.

Cruise/speed control – Allows a driver to select and travel at a set speed without maintaining his/her foot on the accelerator. The controls are located either on the steering wheel or a stem on the left or right side of the steering column.

Enhanced mirror settings – When adjusting the mirror to this setting, the driver will not see the left and right sides of the vehicle when glancing in the outside mirrors. This setting provides the greatest visibility to the sides of the vehicle and reduces blind spots.

Gear selector lever – The lever that allows the driver to shift the transmission and select a gear.

Hazard flasher – Both front and rear turn signal lights flash to warn other drivers of a problem and to increase other drivers' awareness of the presence of the vehicle.

Head restraint – A padded device, sometimes adjustable, extending above the seat back, in the front or rear designed to reduce the risk of neck injury caused by whiplash from the impact of a crash.

Headlights (high beam) – Bright headlight setting that projects light farther than low beams. Used for night driving or poor visibility.

Headlights (low beam) – Headlight setting used often during daylight or city driving; projects light over less distance than high beams.

Unit 2 Words to Know Definitions Page

Fact Sheet 2.8 continued
Content Information

Hood release – Lever used to release the hood of the vehicle. A second latch located under the front edge of the hood must be released to open the hood. Usually located on the left side of the driver's compartment under the dash or just to the left of the steering column.

Ignition switch –This switch locks the steering wheel and gear selector. It also enables the driver to start and turn off the engine or use the radio. It is located on the right side of the steering column or on the dashboard on some vehicles.

Instrument panel – Gauges and lights which provide important information about the vehicle's safety and operational condition. It is located on the dashboard, behind the steering wheel.

Key fob – A small security hardware device with built-in authentication used to control and secure access to a vehicle. Used with push-to-start ignition systems.

Mirrors – Side and rear view mirrors are used to provide more visibility of the area around the vehicle. Adjustment of the mirrors can be done inside and outside in vehicles equipped with remote controlled outside mirrors. These controls may be located on the left side of the dash, the driver's side arm rest, or center console.

Operating vehicle control devices – Controls used for the operation of a vehicle, including steering wheel, gear selector lever, parking brake, cruise/speed control, ignition switch, and accelerator and brake pedals.

Owner's manual – A valuable resource for understanding the operation and maintenance of the vehicle. Reading the owner's manual will ensure familiarity with controls and maintenance requirements assisting in the safe operation of the vehicle.

Parking brake – Holds a vehicle in place when parked and to protect the transmission. May be either a foo- operated pedal located to the far left side of the driver's foot position, a hand-operated lever located to the right of the steering column or to the right of the driver on the floor or center console.

Pre-drive procedures – Steps a driver should take each time before driving a vehicle, including locking doors, placing key in ignition, adjusting seat, head restraint and mirrors, and fastening safety belt.

Pre-entry checks – Looking around the outside of the vehicle for broken glass, body damage, fluid leaks, objects that could damage the vehicle, snow build up and children and pets.

Safety, communication, comfort and convenience devices – Devices in the vehicle used for the safety, comfort and convenience of the driver and to communicate with other roadway users.

Unit 2 Words to Know Definitions Page

Fact Sheet 2.8 continued
Content Information

Safety belts – A restraining belt designed to protect the driver and riders in a motor vehicle. Lap belts fasten across the hips; shoulder belts fasten across the shoulder and chest. One of the most important safety features in a motor vehicle and is designed to help slow occupants rate of deceleration in a frontal collision.

Traditional mirror settings – When adjusting the mirror to this setting, the side of the vehicle is visible in the mirror. This setting limits driver's visibility to the sides of vehicle.

Trunk release – An option on many vehicles to open the trunk from inside the vehicle. The release may be a lever located on the floor just to the left of the driver's seat. In other vehicles the release mechanism is a button located in the glove box or on the key fob.

Turn signals – Device used to communicate which direction the driver plans to turn. Located on the left side of the steering column, the lever is moved up to signal a movement to the right and down for a movement to the left. While the signal will cancel after a turn, the driver may have to cancel the signal manually after a slight turn such as a lane change.

Vehicle reference point – Some part of the outside or inside of the vehicle, viewed from the driver's seat that relates to some part of the roadway. Reference points can be developed for the front, side or rear to help you know where the vehicle is located on the roadway.

Windshield wipers and washers – Device used to clean and keep the windshield clear of rain, snow and other debris. The control is frequently located on the turn signal lever. Two switches are often involved. One controls the speed of the wipers and a second controls the washer fluid.

Unit 2 Words to Know Matchup — Worksheet 2.8

Name	Date

Directions: Match the clues on the left with the words in the list on the right. Place the matching letter in the blank to the left of the number.

_____1.	Reduces the risk of neck injury due to whiplash from the impact of a crash.	A.	Air bags
_____2.	Control in a vehicle located either on the steering column or on the console between the front seats and used to choose forward or reverse.	B.	Enhanced mirror settings
_____3.	Looking around the outside of the vehicle for broken glass, body damage, fluid leaks, objects that could damage the vehicle, snow and children and pets.	C.	Gear selector lever
_____4.	When adjusting the mirror to this setting, the side of the vehicle is visible in the mirror.	D.	Hazard flasher
_____5.	When adjusting the mirror to this setting, the driver will not see the left and right sides of the vehicle when glancing at the outside mirrors.	E.	Head restraints
_____6.	One of the most important safety features in a motor vehicle designed to help slow occupant's rate of deceleration in a frontal collision.	F.	Hood release
_____7.	Device in a vehicle that warns other drivers of a problem and increases awareness of the presence of the vehicle.	G.	Parking brake
_____8.	Works with safety belts and protects against head and chest injuries.	H.	Pre-entry checks
_____9.	Device in a vehicle, usually located on the left side of driver's compartment under the instrument panel, that assists in opening the hood.	I.	Safety belts
_____10.	Control which holds a vehicle in place when it is parked and protects the transmission.	J.	Traditional mirror settings

Unit 2 Words to Know Matchup

Worksheet 2.8
ANSWER KEY

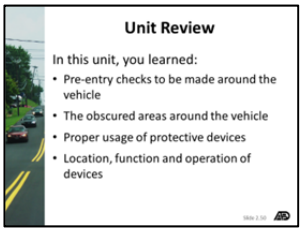
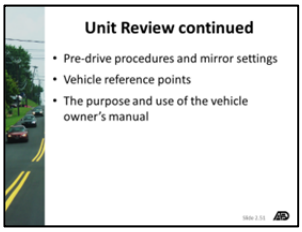
ANSWER KEY

Directions: Match the clues on the left with the words in the list on the right. Place the matching letter in the blank to the left of the number.

___E___ 1.	Reduces the risk of neck injury due to whiplash from the impact of a crash.	A.	Air bags
___C___ 2.	Control in a vehicle located either on the steering column or on the console between the front seats and used to choose forward or reverse.	B.	Enhanced mirror settings
___H___ 3.	Looking around the outside of the vehicle for broken glass, body damage, fluid leaks, objects that could damage the vehicle, snow and children and pets.	C.	Gear selector lever
___J___ 4.	When adjusting the mirror to this setting, the side of the vehicle is visible in the mirror.	D.	Hazard flasher
____B__ 5.	When adjusting the mirror to this setting, the driver will not see the left and right sides of the vehicle when glancing at the outside mirrors.	E.	Head restraints
___I___ 6.	One of the most important safety features in a motor vehicle designed to help slow occupant's rate of deceleration in a frontal collision.	F.	Hood release
___D___ 7.	Device in a vehicle that warns other drivers of a problem and increases awareness of the presence of the vehicle.	G.	Parking brake
___A ___ 8.	Works with safety belts and protects against head and chest injuries.	H.	Pre-entry checks
___ F____9.	Device in a vehicle, usually located on the left side of driver's compartment under the instrument panel, that assists in opening the hood.	I.	Safety belts
___G__ 10.	Control which holds a vehicle in place when it is parked and protects the transmission.	J.	Traditional mirror settings

Unit Review and Test

Part 8 continued
Lesson Content

Lesson Content	Materials and Resources
Getting Acquainted with the Vehicle ➢ **Slides 2.50 and 2.51** Discuss what the students have learned by the end of this unit.	➢ Slides 2.50 and 2.51: Unit Review  
➢ **Reading Assignment** Assign students the reading material for the next unit. Students might begin reading after they have completed the Unit 2 Test.	➢ Textbooks **Preferred Textbook:** **HOW *to* DRIVE** Chapter 4 • Other Textbooks: – Drive Right: Chapters 3 and 4 – Responsible Driving: Chapters 4, 5 and 6 – Other Textbook: _____ _____
➢ **Unit 2 Test** Duplicate and distribute the Unit 2 Test. Collect and grade the test. After returning tests to the students, review the answers and clarify any confusion.	➢ Unit 2 Test, page 2-100

Unit 2 Review

Unit 2 Review

In this unit, you learned the following:

- Pre-entry checks to be made around the vehicle.
- The obscured areas around the vehicle.
- Proper use of protective devices available to occupants of motor vehicles.
- The location, function and operation of safety, communication, comfort, convenience, and control devices, as well as control and information device symbols found in a passenger vehicle in preparation for starting the vehicle.
- The pre-drive procedures used after entering the vehicle and enhanced mirror settings and mirror usage.
- Standard and personal vehicle reference points to know where the vehicle is positioned in relation to the roadway.
- The purpose and use of the vehicle owner's manual.
- Key words associated with the unit objectives.

Getting Acquainted with the Vehicle — Unit 2 Test

Select the best answer and place the appropriate letter (A, B, C, or D) on the line provided.

_____1. When properly seated behind the wheel of a vehicle, the driver should:
- A. Sit a minimum of 10-12 inches from the steering wheel
- B. See the rear bumper of the vehicle
- C. Be far away from the radio controls
- D. Not reach the control pedals comfortably

_____ 2. If the head restraint is adjusted properly, it should:
- A. Be behind the middle of the person's head
- B. Be behind the top of the person's head
- C. Be at neck level of the person seated
- D. Be all the way down for tall people

_____ 3. Which of these controls on the vehicle is an option (not required) that can be purchased?
- A. Horn
- B. Headlight beam switch
- C. Power window switch
- D. Engine oil pressure light/gauge

_____ 4. The primary purpose of the parking brake is to:
- A. Stop your vehicle on a slick surface
- B. Stop your vehicle in an emergency
- C. Hold the vehicle in place when parked and protect the transmission
- D. Hold the vehicle only when parked on a hill

_____ 5. When the driver is properly seated, the top of the steering wheel should be:
- A. No higher than the top of your shoulders
- B. No higher than your chin
- C. No higher than your ears
- D. No higher than the point at which you feel comfortable

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_____ 6. Which symbol represents a safety belt reminder or warning?

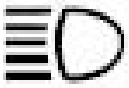
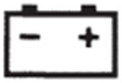
A. 

B. 
C. 
D. 

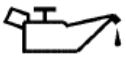
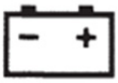
_____ 7. Which symbol represents front windshield defrosters?

A. 
B. 
C. 
D. 

_____ 8. Which symbol represents a high-beam indicator?

A. 
B. 
C. 
D. 

_____ 9. Which symbol represents oil pressure warning?

A. 
B. 
C. 
D. 

_____ 10. When using a front reference point to determine where the front of your vehicle is when perpendicular parking, the curb or line should appear to:

A. Be centered in the rear driver side window
B. Run under the driver or passenger side view mirror
C. Align with the center of the vehicle
D. Align with the crack line between the left fender and the hood

Unit 2 ANSWER KEY

1	A	6	C
2	A	7	D
3	C	8	B
4	C	9	A
5	A	10	B

