

Driver Education
Classroom and In-Car Curriculum

Unit 13

Travel Planning, Loading, Towing and Driving Special Vehicles



Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

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Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

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Overview, Objectives and Words to Know

Unit 13 Introduction
Lesson Content



Overview

Unit 13 will explain to the driver how to effectively plan for travel by preparing a trip plan, developing a driving route, and preparing the vehicle for travel.

Students will also be introduced to the skills required for safely towing a boat or trailer, the techniques for backing a trailer successfully, equipment needed to tow a trailer and how to load a trailer properly.



Objectives

The student will:



1. Describe the preparation needed before taking trips and planning considerations of the vehicle, vehicle loading and equipment, and personal considerations when driving to a destination far away.
2. Describe the skills required for safely towing a boat or trailer and the techniques required to back a trailer successfully.
3. List the basic equipment needed to tow a trailer safely, describe how to connect a trailer to a vehicle, and explain the procedure for distributing weight when loading a trailer.
4. Define key words associated with the unit objectives.



Words to Know

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> • Coupler • Down time • Highway hypnosis • Hitch ball • Increased following distance | <ul style="list-style-type: none"> • Jackknife • Large vehicle considerations • Navigation system • Safety chains | <ul style="list-style-type: none"> • Tongue • Towing • Trailer hitch |
|--|---|---|

Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

Unit 13 Introduction		Lesson Overview Time Frame – 2 hours
Teacher Information and Resources		
Slides	Slides 13.1 – 13.25	
Videos	13.2 Driving Special Vehicles (3 minutes 56 seconds) 13.3 Safe Trailering (4 minutes 59 seconds)	
Video Review	13.2 Video Review: Driving Special Vehicles 13.3 Video Review: Safe Trailering	
Fact Sheets	13.1 Travel Planning 13.2 Towing and Driving Special Vehicles 13.3 Equipment and Loading a Trailer Properly 13.4 Words to Know Definitions Page	
Worksheets	13.4 Words to Know Matchup	
Learning Activities	13.0 Key Words – Word Wall	
Textbooks	<div style="border: 1px solid black; padding: 5px; background-color: #e6f2ff;"> Preferred Textbook:  HOW to DRIVE Chapter 17 </div> Other Textbooks: <u>Drive Right</u> : Chapter 18 Other Textbook: _____	
Unit 13 Test	Unit 13 Test – Travel Planning, Loading, Towing and Driving Special Vehicles – 10 questions	

Key Words

Unit 13 Activity
Lesson Content



Unit Objectives:

Student will define the meaning of the key words in Unit 13.

Lesson Content

Materials and Resources

Key Words

➤ **Learning Activity 13.0**

Throughout the instruction of Unit 13, conduct learning activity to help students with vocabulary and spelling of key words.

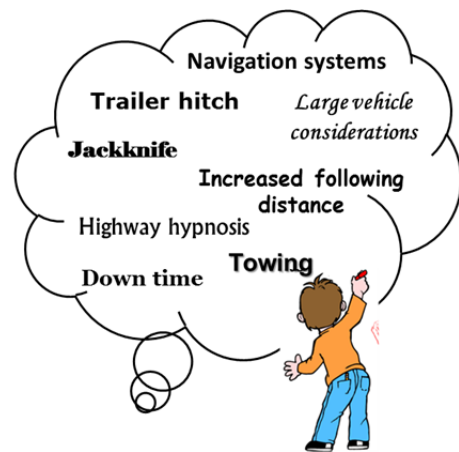
➤ Learning Activity 13.0: Key Words – Word Wall

Learning Activity 13.0**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**



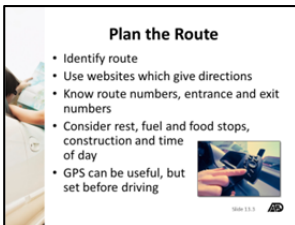
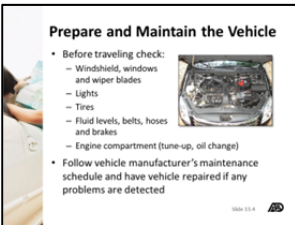
1. As the instructor introduces new words in a unit, the instructor should post these words on the word wall.
 - a. The instructor should remind students to use the words on the wall for recall and correct spelling.
 - b. When an instructor poses a question and a student correctly answers the question, 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 Travel Planning

Part 1
Lesson Content

Lesson Objective:

Student will describe the preparation needed before taking trips and planning considerations of the vehicle, vehicle loading and equipment, and personal considerations when driving to a destination far away.

Lesson Content	Materials and Resources
<u>Unit Objectives</u> <p>➤ Slides 13.1 and 13.2</p> <p>Give an overview of what students should know and be able to do by the end of this unit.</p> <u>Travel Planning</u> <p>➤ Fact Sheet 13.1</p> <p>Duplicate and distribute Fact Sheet 13.1 for students to use as a resource and study guide.</p> <p>➤ Slides 13.3 and 13.4</p> <p>Discuss how to prepare for a long trip by planning the route and preparing the vehicle.</p> <p>Explain how to regularly maintain the vehicle to keep it safe and efficient.</p>	<p>➤ Slides 13.1 and 13.2: Title and Objectives</p>   <p>➤ Fact Sheet 13.1: Travel Planning</p> <p>➤ Slides 13.3 and 13.4: Preparing for Any Trip (Plan the Route, Prepare and Maintain the Vehicle)</p>  

Travel Planning





Fact Sheet 13.1
Content Information

Preparing for Any Trip

When planning an extended drive, preparing in advance can help save time and money and make the trip a safe one.

- **Plan the route** – identify the route before leaving. This can be done using websites which give directions, such as Map Quest. Make sure you know the route numbers and entrance and exit numbers. Also consider rest, fuel, and food stops, potential construction areas and the time of day to avoid rush hour. Some drivers choose to use a navigation system or GPS to help with directions. These can be very useful if the driver takes the proper precautions to prevent driver distractions. Make sure to set the route in the device before driving.
- **Prepare the vehicle** – check the important mechanical components such as windshields and windows, lights, tires, all fluid levels, belts, hoses, and brakes.
 - Tires for inflation, balance, alignment, condition of tread and sidewalls
 - Brakes for wear and/or adjustment
 - Windshield wiper blades and all lights
 - Engine compartment (Tune-up if applicable, oil change, lubrication and filters, hoses, belts, brake, radiator and windshield wiper fluids)
- **Routine maintenance** – it is important to keep the vehicle maintained so it is safe and efficient to drive. Drivers should:
 - Select a service center
 - Make routine checks such as cleaning the windshield and headlights and checking the oil and battery regularly
 - Take the vehicle in for repair if any problems are detected
 - Follow the vehicle manufacturer’s recommended maintenance schedule for proper upkeep of the vehicle
 - Have the tires rotated, engine oil changed, and coolant and brakes checked every spring and fall if driving an average of 12,000 miles a year

Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

Travel Planning	Part 1 continued Lesson Content
Lesson Content	Materials and Resources
<p><u>Travel Planning</u></p> <p>➤ Slides 13.5 and 13.6</p> <p>Discuss how to prepare for a long trip by loading the vehicle properly and packing emergency equipment.</p>	<p>➤ Slides 13.5 and 13.6: Preparing for Any Trip (Load the Vehicle, Pack Emergency Equipment)</p> <div data-bbox="980 567 1276 789" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Load the Vehicle</p> <ul style="list-style-type: none"> • Do not overload vehicle • Load trunk area first and secure loose items • 150 lbs. per belted seat plus 125-175 for luggage • Car-top carriers affect braking and steering   <p style="text-align: right; font-size: small;">Slide 13.5 ADT</p> </div> <div data-bbox="980 831 1276 1054" style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Pack Emergency Equipment</p> <ul style="list-style-type: none"> • Be prepared for anything <ul style="list-style-type: none"> – Maps with routes marked – Flashlight, first-aid kit, – tools – Jack, spare tire, lug wrench, jumper cables – Tow line, gloves, blanket, radiator coolant, anti-freeze and windshield wiper fluid – Window scraper, chains and warm clothing   <p style="text-align: right; font-size: small;">Slide 13.6 ADT</p> </div>

Travel Planning

Fact Sheet 13.1 continued

Content Information

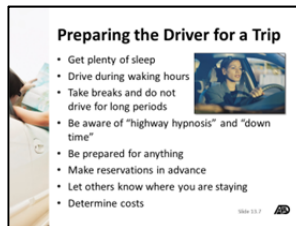
Preparing for Any Trip

- **Load the vehicle** – do not overload the vehicle, which results in more fuel consumed, distribute weight evenly throughout the vehicle. Load the trunk area first and be sure to secure loose items.
 - Load capacity is basically 150 lbs. per belted seating position plus 125-175 lbs. for luggage. Check owners' manual.
 - Soft items only within passenger compartment, i.e. pillows and/or blankets.
 - Car-top carriers raise center of gravity and adversely affect braking and steering.
- **Pack emergency equipment** – be prepared for anything unexpected
 - Maps with routes marked
 - Flashlight, first-aid kit, screwdriver, pliers, adjustable end wrench and socket set
 - Jack, spare tire, lug wrench, wheel blocks and battery jumper cables
 - Tow line, gloves, blanket, radiator coolant/anti-freeze and windshield wiper fluid
 - Window scraper, chains and warm clothing

Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

Travel Planning

Part 1 continued Lesson Content

Lesson Content	Materials and Resources
<p><u>Travel Planning</u></p> <p>➤ Slide 13.7</p> <p>Discuss how to prepare the driver for taking a long trip.</p>	<p>➤ Slide 13.7: Preparing the Driver for a Trip</p> 

Travel Planning

Fact Sheet 13.1 continued

Content Information

Preparing the Driver for a Trip

- **Prepare the driver** – the driver is the most important factor in having a safe road trip
 - **Get plenty of sleep** – get at least 7 or 8 hours of sleep
 - **Drive during waking hours** – this will prevent drowsy driving; avoid driving after dark when visibility is limited and particularly after 11 p.m. when you are more apt to fall asleep while driving
 - **Take breaks** – stop every 2 or 3 hours or every 100 miles with 10 – 15 minute breaks
 - **Be aware of “highway hypnosis”** – occurs particularly on a rural expressway with little traffic when traveling at high speeds for long periods of time, the driver may become hypnotized by constant staring ahead on the roadway, which may result in driving in a dulled, drowsy or trancelike condition, plan breaks and pull to a safe area if tired
 - **Do not drive for extended periods of time** – if one person will be doing all of the driving, 6 to 8 hours of driving in any one day should be considered the limit. If sharing the driving between two people, driving should not exceed 10 – 12 hours.
 - **Be aware of “down time”** – the period between one and five p.m. and plan to take a break during that period
 - **Be prepared for anything** – bring extra set of keys, insurance information, money, water to drink, high energy food and fruit, vehicle owner’s manual, and maps
 - **Make reservations in advance** – if camping or staying in hotels/motels make the reservations ahead of time
 - **Let others know where you are staying** – let a family member or trusted friend know where and how to reach you in an emergency
 - **Determine costs** – determine approximate costs of fuel, meals, lodging and entertainment and be prepared to pay any large repair bill in case of a vehicle breakdown

Towing and Driving Special Vehicles

Part 2
Lesson Content**Lesson Objective:**

Student will describe the skills required for safely towing a boat or trailer and the techniques required to back a trailer successfully.

Lesson Content	Materials and Resources
<p><u>Handling Large Vehicles</u></p> <p>➤ Video Review 13.2</p> <p>Duplicate and distribute Video Review 13.2. Students should complete the worksheet as they watch the video.</p> <p>➤ Slides 13.8 and 13.9 – Video 13.2</p> <p>Discuss the topics covered in Video 13.2. Play Video 13.2.</p> <p><i>Driving Special Vehicles</i></p> <p>(Time: 3 minutes 56 seconds)</p> <p>After viewing, review Video Review 13.2, using Answer Key to gauge student understanding of the video.</p>	<p>➤ Video Review 13.2 and Answer Key: Driving Special Vehicles</p> <p>➤ Slides 13.8 and 13.9: Video 13.2 <i>Driving Special Vehicles</i></p> <div data-bbox="824 913 1117 1134"> </div> <div data-bbox="1128 913 1421 1134"> </div>

Towing and Driving Special Vehicles

Video Overview 13.2



Video Overview 13.2: Driving Special Vehicles

Title

Driving Special Vehicles

Time

3 minutes 56 seconds

Topics Covered

1. How to safely drive a large vehicle or vehicle towing a trailer.
2. How to back a vehicle towing a trailer.

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

Towing and Driving Special Vehicles

Video Review 13.2

Video Review 13.2: Driving Special Vehicles

Name

Date

1. What is the maximum recommended speed for most car-trailer combinations?

2. How much braking time or following distance do you need when towing a trailer?

3. What is a good rule of thumb when going up and down a hill while towing a trailer?

4. What should you do when turning at sharp corners while towing a trailer?

5. What should you do if the trailer starts to jackknife while backing?


Towing and Driving Special Vehicles

Video Review 13.2

ANSWER KEY

To see the Answer Key you must purchase the 3.0 Curriculum.



Towing and Driving Special Vehicles	Part 2 Lesson Content
Lesson Content	Materials and Resources
<p><u>Handling Large Vehicles</u></p> <p>➤ Fact Sheet 13.2</p> <p>Duplicate and distribute Fact Sheet 13.2 for students to use as a resource and study guide.</p> <p>➤ Slide 13.10</p> <p>Discuss how to handle large vehicles, such as motor homes, recreation vehicles, moving trucks, wide-axle pickup trucks and delivery trucks.</p>	<p>➤ Fact Sheet 13.2: Towing and Driving Special Vehicles</p> <p>➤ Slide 13.10: Handling Large Vehicles</p> <div data-bbox="980 722 1276 945">  </div>

Towing and Driving Special Vehicles

Fact Sheet 13.2
Content Information

Handling Large Vehicles

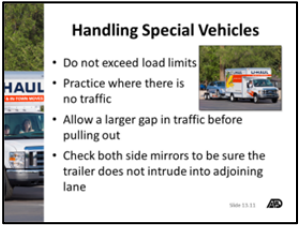
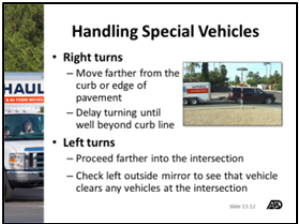
There are many types of large vehicles that passenger drivers are licensed to drive, including motor homes and recreational vehicles, moving trucks, wide-axle pickup trucks and delivery trucks. To operate these vehicles safely, the driver needs to understand their dimensions and limitations.

- **Weight factor** – large vehicles weigh more than the average passenger vehicle and the extra weight can affect the driver's ability to accelerate, turn and slow down
- **Accelerating** – heavier vehicles accelerate more slowly so allow enough space to get up to speed
- **Turning** – heavier vehicles have a higher center of gravity, which can make turning maneuvers more challenging; therefore, it is critical to slow down well in advance of turns and use smooth, gradual steering movements
- **Decelerating** – heavier vehicles need more distance than other vehicles to slow down, meaning a driver should allow more space between his/her vehicle and the vehicle ahead

Towing and Driving Special Vehicles

Part 2 continued

Lesson Content

Lesson Content	Materials and Resources
<p><u>Handling Special Vehicles</u></p> <p>➤ Slides 13.11 and 13.12</p> <p>Discuss the special handling characteristics and skills for towing a vehicle or driving an RV or large vehicle.</p> <p>Discuss how to maneuver the vehicle when making left and right turns.</p>	<p>➤ Slides 13.11 and 13.12: Handling Special Vehicles</p> <div data-bbox="980 535 1276 758">  <p>Handling Special Vehicles</p> <ul style="list-style-type: none"> • Do not exceed load limits • Practice where there is no traffic • Allow a larger gap in traffic before pulling out • Check both side mirrors to be sure the trailer does not intrude into adjoining lane <p>Slide 13.11 ADTSEA</p> </div> <div data-bbox="980 798 1276 1020">  <p>Handling Special Vehicles</p> <ul style="list-style-type: none"> • Right turns <ul style="list-style-type: none"> – Move farther from the curb or edge of pavement – Delay turning until well beyond curb line • Left turns <ul style="list-style-type: none"> – Proceed farther into the intersection – Check left outside mirror to see that vehicle clears any vehicles at the intersection <p>Slide 13.12 ADTSEA</p> </div>

Towing and Driving Special Vehicles

Fact Sheet 13.2 continued

Content Information

Handling Special Vehicles

Before towing a vehicle or driving an RV, drivers need to learn some special skills.

- **Trailers** – come in all shapes and sizes, including utility trailers, tandem axles, horse and boat trailers, and travel trailers.
- **Load limits** – all vehicles have gross vehicle weight or weight-to-trailer towing-capacity limits, so it is critical not to exceed a vehicle's recommended load or trailer load limits. Refer to your owner's manual or vehicle's doorjamb for this information.
- **Practice where there is no traffic** – before driving these vehicles, practice in a driveway or vacant parking lot
- **Starting** – check traffic carefully and allow a larger gap in traffic before pulling out; check both side mirrors to be sure the trailer does not intrude into an adjoining lane
- **Turning** – it is critical to use the right outside mirror to check the vehicle's or trailer's clearance from the curb
 - **Right turns** – the driver should move farther from the curb or edge of the pavement than s/he would with a car and delay turning until well beyond the curb line
 - **Left turns** – the driver should proceed farther into the intersection than normal to allow adequate space for the trailer or motor home and should check the left outside mirror to see that the vehicle clears any vehicles waiting at the intersection

Towing and Driving Special Vehicles

Part 2 continued

Lesson Content

Lesson Content	Materials and Resources																
<p><u>Handling Special Vehicles</u></p> <p>➤ Slides 13.13 through 13.15</p> <p>Discuss how to maneuver the vehicle when passing and driving through curves.</p> <p>Discuss what to do if trailer sway or whipping occurs.</p> <p>Emphasize the need to increase following distance one second for each additional 10 feet beyond 15 feet of overall vehicle and trailer length.</p>	<p>➤ Slides 13.13 through 13.15: Handling Special Vehicles</p> <div><p>Handling Special Vehicles</p><ul style="list-style-type: none">• Passing<ul style="list-style-type: none">— Need more time and space to pass• If whipping occurs<ul style="list-style-type: none">— Do not steer or apply brakes— Let off gas and firmly hold wheel— Trailer will stabilize as vehicle slows down<p>Slide 13.13</p></div> <div><p>Handling Special Vehicles</p><ul style="list-style-type: none">• Roads that curve right<ul style="list-style-type: none">— Allow more distance from edge of pavement— Keep toward the center line• Roads that curve left<ul style="list-style-type: none">— Stay to the right so you do not cross the center line<p>Slide 13.14</p></div> <div><p>Handling Special Vehicles</p><ul style="list-style-type: none">• Increase following distance one second for each additional 10 feet beyond 15 feet of overall vehicle and trailer length<table><thead><tr><th>Vehicle</th><th>Normal Following Distance</th><th>Additional Following Distance</th><th>Total Following Distance</th></tr></thead><tbody><tr><td>Automobile with no trailer</td><td>2 to 4 seconds</td><td>None needed</td><td>2 to 4 seconds</td></tr><tr><td>Automobile with 20-foot trailer</td><td>3 to 4 seconds</td><td>2 seconds</td><td>5 to 6 seconds</td></tr><tr><td>35-foot motor home</td><td>3 to 4 seconds</td><td>2 seconds</td><td>5 to 6 seconds</td></tr></tbody></table><p>Slide 13.15</p></div>	Vehicle	Normal Following Distance	Additional Following Distance	Total Following Distance	Automobile with no trailer	2 to 4 seconds	None needed	2 to 4 seconds	Automobile with 20-foot trailer	3 to 4 seconds	2 seconds	5 to 6 seconds	35-foot motor home	3 to 4 seconds	2 seconds	5 to 6 seconds
Vehicle	Normal Following Distance	Additional Following Distance	Total Following Distance														
Automobile with no trailer	2 to 4 seconds	None needed	2 to 4 seconds														
Automobile with 20-foot trailer	3 to 4 seconds	2 seconds	5 to 6 seconds														
35-foot motor home	3 to 4 seconds	2 seconds	5 to 6 seconds														

Towing and Driving Special Vehicles

Fact Sheet 13.2 continued

Content Information



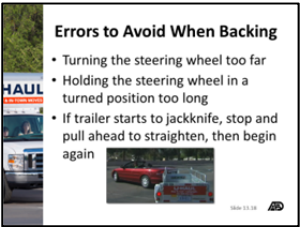
Handling Special Vehicles

- **Overtaking and passing** – drivers need more time and space to overtake and pass another vehicle; therefore; they should check their blind areas to ensure they are far enough ahead to signal and move back into the travel lane.
- **Being passed and overtaken** – turbulent air from large vehicles passing can make the vehicle and trailer sway. Be prepared and DO NOT counter-steer, hold the steering straight ahead until the sway subsides.
- **If trailer sway or whipping occurs** – If the trailer begins to sway excessively or whip violently; do not steer, do not apply your brakes, let off the gas pedal and firmly hold the steering wheel in a straight-ahead position. The trailer will stabilize as the vehicle slows down. Never speed up to try to control sway.
- **Curves** – for roads that curve right, allow more distance from the edge of the pavement and keep toward the center line. For roads that curve to the left stay to the right so you do not cross the center line.
- **Increase following distance** – increase following distance one second for each additional 10 feet beyond 15 feet of overall vehicle and trailer length

Towing and Driving Special Vehicles

Part 2 continued

Lesson Content

Lesson Content	Materials and Resources
<p><u>Backing a Trailer</u></p> <p>➤ Slide 13.16</p> <p>Explain the techniques required to back a trailer successfully by placing hand at the bottom of the steering wheel and turning the wheel in the direction the driver wants to turn.</p> <p>➤ Slide 13.17</p> <p>Explain the techniques required to back a trailer successfully by turning the steering wheel in the opposite direction.</p> <p>➤ Slide 13.18</p> <p>Discuss errors to avoid and what to do if the trailer jackknifes.</p>	<p>➤ Slide 13.16: Backing a Trailer by Turning Steering Wheel in Direction Driver Wants to Turn</p>  <p>➤ Slide 13.17: Backing a Trailer by Turning Steering Wheel in the Opposite Direction</p>  <p>➤ Slide 13.18: Errors to Avoid When Backing</p> 

Towing and Driving Special Vehicles**Fact Sheet 13.2 continued****Content Information****Backing a Trailer**

Backing a trailer can be difficult for new trailer operators. It is best to avoid backing if possible, but sometimes backing is necessary, so drivers should learn to do it. There are two different ways to back a trailer.

1. Backing by turning the steering wheel in the direction driver wants to turn:

Try this easy method to help control direction while backing up a trailer. Typically used when you can see over your shoulder through the rear window.

- Back slowly and look directly over your shoulder through the rear window (without using your mirrors), unless you cannot see out your rear window
- Keep your left hand at the bottom of the steering wheel, with your right arm over back of passenger seat
- To move the trailer left, move your hand to the left
- To back to the right, move your hand to the right
- If the trailer starts to jackknife, which forms a V-shape between the trailer and towing vehicle, stop, pull ahead to straighten out; then begin again. Once you start to go correctly, follow the trailer around. Turning the steering wheel too far or holding the steering wheel in a turned position too long can cause the trailer and vehicle to jackknife.

2. Backing by turning the steering wheel in the opposite direction:

Typically used when you cannot look directly over your shoulder. When using this method you must use the mirrors. When backing, the driver will turn the steering wheel in the opposite direction s/he wants the vehicle to go.

- To back to the left, turn the steering wheel to the right
- Straighten the wheel
- Turn the wheel in the opposite direction
- Straighten the wheel as the trailer responds to the towing vehicle's action
- Turn the steering wheel to the right
- Straighten the wheel and back the towing vehicle and trailer

Equipment, Connecting and Loading a Trailer Properly

Part 3
Lesson Content**Lesson Objective:**

Student will list the basic equipment needed to tow a trailer safely, describe how to connect a trailer to a vehicle, and explain the procedure for distributing weight when loading a trailer.

Lesson Content**Materials and Resources****Equipment, Connecting and Loading a Trailer Properly**➤ **Video Review 13.3**

Duplicate and distribute Video Review 13.3. Students should complete the worksheet as they watch the video.

➤ **Slides 13.19 and 13.20 – Video 13.3**

Discuss the topics covered in Video 13.3.

Play Video 13.3.

Safe Trailing

(Time: 4 minutes 59 seconds)

After viewing, review Video Review 13.3, using Answer Key to gauge student understanding of the video.

➤ **Video Review 13.3 and Answer Key: Safe Trailing**➤ **Slide 13.19 and 13.20: Video 13.3 Safe Trailing**

Equipment, Connecting and Loading a Trailer Properly

Video Overview 13.3



Video Overview 13.3: Safe Trailing

Title

Safe Trailing

Time

4 minutes 59 seconds

Topics Covered

1. Basic equipment needed to tow a trailer safely.
2. How to attach a vehicle to a trailer.
3. How to load a trailer properly.

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

Equipment, Connecting and Loading a Trailer Properly

Video Review 13.3

Video Review 13.3: Safe Trailering

Name

Date

1. How do you determine the ratings and sizes of the hitch components?

2. Why is it important to make sure the coupler is tight over the hitch ball when connecting a trailer?

3. Where do the safety chains connect to?

4. When loading a trailer where should you place the heaviest objects?

Equipment, Connecting and Loading a Trailer Properly

Video Review 13.3



ANSWER KEY

To see the Answer Key you must purchase the 3.0 Curriculum.



Equipment, Connecting and Loading a Trailer Properly

Part 3 continued Lesson Content

Lesson Content	Materials and Resources
<p><u>Basic Equipment for Towing</u></p> <p>➤ Fact Sheet 13.3</p> <p>Duplicate and distribute Fact Sheet 13.3 for students to use as a resource and study guide.</p> <p>➤ Slide 13.21</p> <p>Discuss the basic equipment needed to tow a trailer.</p> <p>➤ Slide 13.22</p> <p>Discuss the components of a car-trailer combination and emphasize that the system must work together.</p>	<p>➤ Fact Sheet 13.3: Equipment and Loading a Trailer Properly</p> <p>➤ Slide 13.21: Basic Equipment for Towing</p>  <p>➤ Slide 13.22: Basic Equipment for Towing</p> 

Equipment, Connecting and Loading a Trailer Properly

Fact Sheet 13.3 Content Information

Basic Equipment for Towing

Additional equipment

An ordinary passenger vehicle is not ready to tow trailers. Additional equipment is needed, such as a heavy-duty suspension, an increased-capacity cooling system and a high-ratio axle. Drivers will also need additional, oversize mirrors. Air pressure in the rear tires of vehicles may be increased to handle the additional weight of the trailer.

Emergency equipment

Regular emergency equipment usually is adequate for towing light trailers, but if towing a heavier boat or travel trailer the driver will need special equipment, such as a hydraulic jack, red flags and flares, wheel chocks, flashlights and trouble lights, and tow chains/ropes. The driver will also need some basic tools and an adequate jack and lug wrench to change tires.

Trailer hitch

Drivers towing trailers will need a well-engineered hitch, generally bolted to the vehicle frame. When installed they should also include safety chains and an electrical connection for trailer brake lights and taillights.



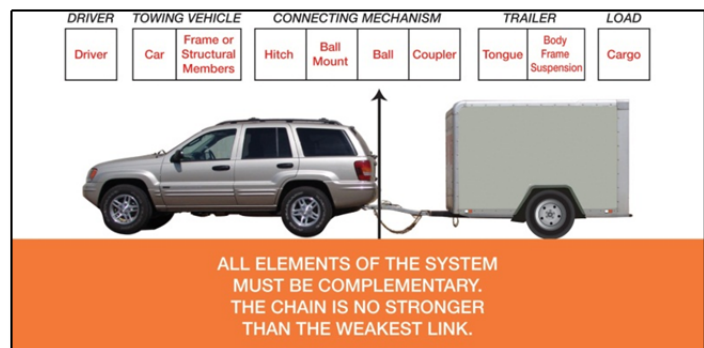
Hitch ball

For different use classifications, engineers recommend a minimum-size hitch ball for passenger car-trailer couplings. This information can be found in the trailer manual. Usually the hitch and ball-mount attachment allows a short distance between the two vehicles.



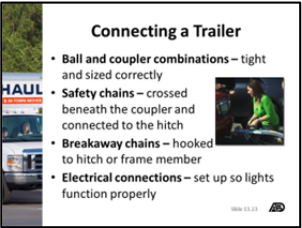
The system

When a car tows a trailer, both the car and the trailer cease to exist as separate vehicles. They merge to form a single unit: the car-trailer combination. The driver, automobile, hitch, trailer and load are interdependent elements of a total system. A single-element approach is not adequate.



Equipment, Connecting and Loading a Trailer Properly

Part 3 continued
Lesson Content

Lesson Content	Materials and Resources
<p><u>Connecting and Disconnecting a Trailer</u></p> <p>➤ Slide 13.23</p> <p>Discuss how to connect and disconnect a trailer from a vehicle.</p>	<p>➤ Slide 13.23: Connecting a Trailer</p> <div data-bbox="980 499 1279 724">  <p>Connecting a Trailer</p> <ul style="list-style-type: none"> • Ball and coupler combinations – tight and sized correctly • Safety chains – crossed beneath the coupler and connected to the hitch • Breakaway chains – hooked to hitch or frame member • Electrical connections – set up so lights function properly </div>

Equipment, Connecting and Loading a Trailer Properly

Fact Sheet 13.3 continued

Content Information

Connecting and Disconnecting a Trailer

The car-trailer combination must be securely connected via the hitch and coupler, with safety chains and breakaway chain (on trailers with brakes) properly attached. A good general rule is: when you begin trailer hookup, always finish the process without pausing or stopping to do something else. Otherwise, you may forget to complete the connection properly.

Ball and coupler combinations vary, but all should be tight, and checked periodically to maintain tightness. Hitch balls vary in size (1-7/8", 2" or 2-5/16") and should be mated to the same size coupler or to a coupler that fits multiple sizes.

To connect the trailer:

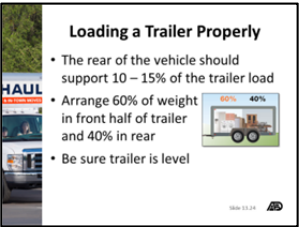
1. Lift the coupler onto the ball
2. Tighten hand wheel
3. Jiggle on coupler and push back on trailer, tighten hand wheel until very tight and have good connection
4. Attach safety chains by crisscrossing chains and wrapping them through the holes on the hitch, adjust slack and secure safety hooks
5. Connect the lights

Safety chains – permanently attached to the trailer tongue should be crossed beneath the coupler and connected to the hitch or to a frame member of the tow vehicle. Allow enough slack for turns but make sure the chains do not drag on the ground.

The breakaway chain will activate trailer brakes if disengagement of the trailer from the hitch or car occurs. This chain also should be hooked to a frame member or the hitch. Use slightly less slack than the safety chains.

Electrical connections should be made according to instructions so that trailer brake lights, turn indicators and other lights function properly.

Regardless of the elements of your car-trailer combination, make a step-by-step checklist to follow in properly connecting the system. This checklist can be followed—in reverse order—to disconnect the system.

Equipment, Connecting and Loading a Trailer Properly	Part 3 continued Lesson Content
Lesson Content	Materials and Resources
<p><u>Loading a Trailer Properly</u></p> <p>➤ Slide 13.24</p> <p>Discuss how to properly load a trailer.</p>	<p>➤ Slide 13.24: Loading a Trailer Properly</p> <div data-bbox="980 506 1278 730">  <p>Loading a Trailer Properly</p> <ul style="list-style-type: none"> • The rear of the vehicle should support 10 – 15% of the trailer load • Arrange 60% of weight in front half of trailer and 40% in rear • Be sure trailer is level <p>Slide 13.24</p> </div>

Equipment, Connecting and Loading a Trailer Properly

Fact Sheet 13.3 continued

Content Information

Loading a Trailer Properly

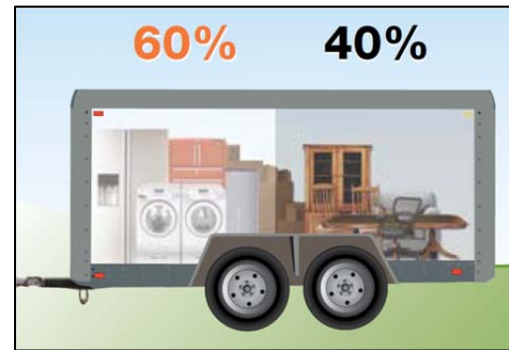
Stay under the limits

Many SUVs and cars with rear seat room for three passengers allow a total rear seat and cargo area maximum load of 650 lbs. As part of a car-trailer combination, trailer tongue weight is added to the rear of the car and adjustments may need to be made, because the allowed 650 lbs. is reduced by the value of the trailer tongue weight. As more weight is added to the rear of an already front-heavy car, the handling characteristics start to change. To minimize the amount of this handling change, drivers should minimize the amount of weight (cargo and passengers) carried in the rear area of the car. Reducing this load is best accomplished by placing the heaviest passenger to the front seat and the lighter passengers and cargo or no passengers and cargo in the rear seat and trunk of the vehicle.

Trailers should be loaded more heavily in front so that approximately 5 to 15 percent (depending on type of trailer) of their total weight is carried on the tow car hitch. Never load the vehicle beyond the owner's manual limits when towing a trailer and be sure to include trailer tongue weight as part of the load.

Load trailers heavier in front

The total weight of the load should not exceed the weight capacity of the trailer. Trailers must be loaded heavier in front or the trailer will sway violently, called whipping. Arrange 60 percent of the weight in the front half of the trailer and 40 percent in the rear. Distribute the weight equally from side to side. Keep the center of gravity low, with heavy items (including books) on the floor of the trailer, not packed on top. Keep the center of gravity forward (approximately 10 percent of the loaded trailer weight on the tow-car hitch). If your specific trailer has different loading instructions, be sure to follow those instructions.



Be sure trailer is level

Walk around to see if the tow vehicle and trailer are level after loading. The tow vehicle and trailer should be about parallel to the ground, or the tow vehicle may dip slightly in the rear due to tongue weight. Too much weight in the rear of the trailer will lift the rear of the towing vehicle and cause whipping. Too much weight in the front of the trailer will raise the towing vehicle's front end excessively.

Unit Review and Test

Part 4
Lesson Content



Lesson Objective:

Student will evaluate their knowledge of the content presented in Unit 13 through review questions, key word matchup worksheet and unit test.

Lesson Content	Materials and Resources
<p><u>Review Questions</u></p> <p>➤ Review Questions</p> <p>Ask review questions to summarize discussion on Unit 13.</p>	<p>➤ Unit 13 Review Questions</p>

Unit 13 Review Questions



1. What should a driver consider when planning a route?
2. What should the driver check on the vehicle before taking a long trip?
3. What is the load capacity for passenger vehicles?
4. What should the driver do to prepare for a long trip?
5. How long should a person drive in any one day and how often should s/he take breaks?
6. How does towing a trailer or driving a large vehicle affect the handling?
7. What should the driver do when making a right turn when towing a trailer or driving a large vehicle?
8. How much should a driver towing a trailer or driving a large vehicle increase his/her following distance?
9. What should a driver do if the trailer s/he is backing starts to jackknife?
10. What percent of weight should be loaded in the front of a trailer?

To see the Answer Key you must purchase the 3.0 Curriculum.

Unit Review and Test		Part 4 continued	
		Lesson Content	
Lesson Content		Materials and Resources	
<p><u>Words to Know Review</u></p> <p>➤ Fact Sheet 13.4</p> <p>Duplicate and distribute Fact Sheet 13.6. Use the definitions page as a resource for teaching and for the students as a resource and study guide.</p> <p>➤ Worksheet 13.4</p> <p>Duplicate and distribute. Have students complete the worksheet.</p> <p>Review the answers.</p>		<p>➤ Fact Sheet 13.4: Unit 13 Words to Know Definitions Page</p> <p>➤ Worksheet 13.4 and Answer Key: Unit 13 Words to Know Matchup</p>	

Unit 13 Words to Know Definitions Page

Fact Sheet 13.4
Content Information



Coupler – connecting device mounted at the front of the trailer tongue that connects directly to the hitch ball on the car

Down time – the period between one and five p.m., when drivers should plan to take a break when driving

Highway hypnosis – when the driver becomes hypnotized by constant staring ahead on the roadway, which may result in driving in a dulled, drowsy or trancelike condition, usually occurs when driving on rural expressways with little traffic and high speeds for long periods of time

Hitch ball – ball shaped part of the hitch, which connects to the coupler

Increased following distance – when driving large vehicles or towing a trailer drivers should increase their following distance one second for each additional 10 feet beyond 15 feet of overall vehicle and trailer length

Jackknife – forms a V-shape between the trailer and towing vehicle and may occur when backing a trailer

Large vehicle considerations – the effects of the driver's ability to accelerate, turn and slow down when driving large vehicles or towing a trailer

Navigation system – electronic device to help with directions while driving, which can be useful if the driver takes precautions to prevent driver distractions

Safety chains – one end attaches permanently to the trailer tongue, the other end attaches to the car's hitch, which keeps a connection should the trailer detach

Tongue – part of the trailer which extends forward from the trailer body and includes the coupler

Towing – the process of pulling a trailer with a chain, line, bar or some other form of couplings

Trailer hitch – a device, mounted on the rear of the vehicle, attaches a trailer to the tow vehicle, and is the point of connection between the tow vehicle and trailer

Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

Unit 13 Words to Know Matchup

Worksheet 13.4

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. Electronic device to help with directions while driving, which can be useful if the driver takes precautions to prevent driver distractions | A. Coupler |
| _____ 2. One second for each additional 10 feet beyond 15 feet of overall vehicle and trailer length | B. Down time |
| _____ 3. The effects of the driver's ability to accelerate, turn and slow down when driving large vehicles or towing a trailer | C. Highway hypnosis |
| _____ 4. A device, mounted on the rear of the vehicle, attaches a trailer to the tow vehicle, providing a connection to the vehicle | D. Increased following distance |
| _____ 5. The period between one and five p.m., when drivers should plan to take a break when driving | E. Jackknife |
| _____ 6. Forms a V-shape between the trailer and towing vehicle and may occur when backing a trailer | F. Large vehicle considerations |
| _____ 7. Occurs when driving on rural expressways with little traffic and high speeds for long periods of time | G. Navigation system |
| _____ 8. The process of pulling a trailer with a chain, line, bar or some other form of couplings | H. Tongue |
| _____ 9. Connecting device mounted at the front of the trailer tongue that connects directly to the hitch ball on the car | I. Towing |
| _____ 10. Part of the trailer which extends forward from the trailer body and includes the coupler | J. Trailer hitch |



Unit 13 Words to Know Matchup

Worksheet 13.4
ANSWER KEY

To see the Answer Key you must purchase the 3.0 Curriculum.


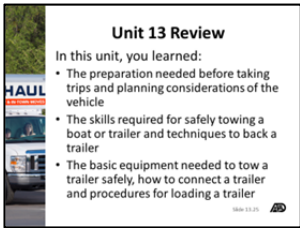



Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

Unit Review and Test

Part 4 continued

Lesson Content

Lesson Content	Materials and Resources
<p><u>Unit Review and Test</u></p> <p>➤ Slide 13.25</p> <p>Discuss what the students have learned by the end of this unit.</p> <p>➤ Unit 13 Test </p> <p>Duplicate and distribute the Unit 13 Test.</p> <p>Collect and grade the test.</p> <p>After returning tests to the students, review the answers and clarify any confusion.</p>	<p>➤ Slide 13.25: Unit Review</p> <div data-bbox="1016 497 1313 722">  <p>Unit 13 Review</p> <p>In this unit, you learned:</p> <ul style="list-style-type: none"> • The preparation needed before taking trips and planning considerations of the vehicle • The skills required for safely towing a boat or trailer and techniques to back a trailer • The basic equipment needed to tow a trailer safely, how to connect a trailer and procedures for loading a trailer <p>180A-13.25 </p> </div> <p>➤ Unit 13 Test, page 13-44</p>

Unit 13 Review

Unit 13 Review

In this unit, you learned:

- The preparation needed before taking trips and planning considerations of the vehicle, vehicle loading and equipment, and personal considerations when driving to a destination far away.
- The skills required for safely towing a boat or trailer and the techniques required to back a trailer successfully.
- The basic equipment needed to tow a trailer safely and the procedures for distributing weight when loading a trailer.
- Key words associated with the unit objectives.

To see the Unit Test you must purchase the 3.0 Curriculum.

Unit 13 Travel Planning, Loading, Towing and Driving Special Vehicles

**Travel Planning, Loading, Towing and Driving
Special Vehicles**

Unit 13 Test
Page 2

To see the Unit Test you must purchase the 3.0 Curriculum.



To see the Answer Key you must purchase the 3.0 Curriculum.