

# Unit 1: Before You Drive In Car Resources

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## SESSION 1 BTW - KNOW YOUR VEHICLE

### **Topics Addressed:**

- The importance of knowing, and being able to identify and appropriately employ, the primary components of any passenger vehicle
- Become familiar with the operational components of the driver ed (DE) vehicle compared to the student's family vehicle
- Discuss the fundamental vehicle control skills that are required to begin operating a vehicle
- Identify what driving skills the student may possess, and how to build on their prior knowledge

### **Description of Suggested Driving Route:**

Low risk traffic, such as a school or mall parking lot, driving range, quiet suburban neighborhood, and recreational parks

### **Supporting Topics for Discussion:**

- Familiarization with the DE vehicle vs. your family vehicle
  - Checking the owner's manual
- Approaching the vehicle
- Dashboard gauges and indicators
  - Air bags and warning light for anti-lock brake system (ABS)
  - Cruise/speed control
  - Fuel gauge
  - Gear selector lever
  - Hazard flasher
  - Headlights and high beams
  - Horn
  - Odometer/trip meter
  - Speedometer
  - Temperature controls
- Wipers/intermittent positions
- Seating and mirror adjustments
  - Body position/seat position behind the wheel
  - Enhanced mirror settings
  - Blind spots and reference points
- Occupant restraints (laws and best practices)

- Operating checklists and procedures pre-start checks
  - Pre-drive checks
  - Start-up procedure
  - Shutting down/securing procedures
  - Starting and stopping procedures
- Accelerator pedal
  - Creeping, inching, rolling
- Brake pedal – application of pressure
  - Cover brake
  - Parking brake
  - ABS pressure
  - Various braking pressures for stopping situations
- Observing the area around the vehicle

### ***Fundamental Driving Skills:***

- Smooth acceleration control/techniques
- Proper foot position
- Holding steady pressure at moderate levels
- Benefits of steady speed control (e.g., fuel efficiency)
- Variations in a cruising speed
- Early deceleration
- Smooth deceleration
- Correct braking techniques: cover brake, light brake 10-25%, moderate pressure 25-50% quick control 75%-95% ABS 100%
- Smooth timing/limited braking
- Smooth steering control when braking
- Proper hand positioning for steering
- Display steady lane tracking
- Maintaining optimal lane position
- Using the hand demonstration for lane positioning 1-2-3-4-5 digits to show where to be in the lane.

### **Supporting Learning Activities:**

- **Activities for the Student Driver While Behind the Wheel:**
  - [Instructor's Checklist for Driver's Performance](#)
- **Activities for the Student Observers:**
  - [Instructor's Checklist for Observer's Participation](#)
  - [Activity 1.1](#)
  - [Activity 1.2](#)

### **Supporting Activities for Parents/Guardians to Complete with Their Student Driver:**

- Request parents review and sign the NYS DOH Share the Keys driving contract
- Distribute NYS DOH Graduated Driver Licensing Law (GDL): A Parent's Guide; request that parents review and discuss with their students

### **Assessment Tools:**

- On-going Evaluation Sheet
- Student Card Rating Score 5-4-3-2-1
- Skill/Observation Scores
- Ask observers to watch for 2 skill strengths and 2 skill weaknesses that each driver might improve

## SESSION 1 BTW SKILLS AND ACTIVITIES – KNOW YOUR VEHICLE

<b><i>Instructor's Checklist for Driver's Performance- check off the characteristics reviewed and demonstrated on various routes.</i></b>	
	Explain the procedures used during pre-drive checks including observing vehicle surroundings, wheel positioning, and exit plan
	Complete pre-start checks and adjustments for: seats, headrest, mirrors (rearview and sides), steering wheel and daytime running lights (DRL)
	Make sure all occupants' seat belts are properly adjusted and buckled; check if airbags are activated
	Demonstrate proper starting procedures: gear selection, brake pedal depressed, instructor brake functionality
	While driving, explain and execute safe vehicle communication intentions, horn usage, mirror positions, checking of blind spots related to surroundings
	Driver and passengers can identify location and uses of dashboard gauges: speedometer, tachometer, odometer, trip meter, oil levels, and fuel
	Execute proper operation of turn signals, low beam headlights, high beam headlights, and hazard lights
	Execute the following skills: pulling vehicle forward and backing vehicle up
	Execute the following skills while driving around outer perimeter of parking lot: left and right turns, safe tracking and speed with appropriate acceleration, steering and braking
	Demonstrate pulling in and out of perpendicular parking spots on both the left and right sides using proper techniques

	Execute shut down procedures: gear selection park, lights off, removal of key, and check back seat for young passengers
	Execute and demonstrate the 4 L's of safety: <u>L</u> ook, <u>L</u> ever, <u>L</u> ook, <u>L</u> eave

<b><i>Instructor's Checklist for Observer's Participation- discuss and review the following topics with the observers in the vehicle.</i></b>	
	Complete Activity 1.1
	Complete Activity 1.2

## Activity 1.1

### Instructions:

Answer each riddle below. See if you can make additional riddles in reference to controls, indicators or devices on the vehicle.

1. If I am fitted properly, I help you avoid hitting the inside of the vehicle during a sudden stop or collision. What am I?
2. When I am on, all turn signal lights flash at the same time. I warn others that your vehicle is a hazard or that you are in trouble. What am I?
3. I let you view what is coming from the rear of your vehicle. My adjustment should be checked before you drive. What am I?
4. I show you the number of miles a vehicle has been driven. What am I?
5. In a vehicle with an automatic transmission, you move me to choose forward or reverse gears. What am I?
6. In a vehicle with a manual transmission I am to the left of the brake pedal. You push me down when shifting gears. What am I?
7. I provide a reading regarding the fuel in the vehicle. What am I?
8. I am used to adjust side view mirrors. What am I?

## Activity 1.2

### Instructions:

- Have each driver perform the tasks on the pre-drive checklist.
- Have observers explain each of the components and its relation to effective vehicle operation and control.
- Continue practice with each driving session with the goal of establishing this as an automatic driving habit.

The following are sample procedures for pre-start and securing a vehicle.

<u>Pre-Start Checklist</u>	<u>Securing Vehicle Checklist</u>
<ul style="list-style-type: none"><li>• A visual check should be made to inspect the outside of vehicle and area surrounding the vehicle before entering</li><li>• Key in ignition (disregard if push button start exists)</li><li>• Adjust the seat</li><li>• Adjust headrest</li><li>• Doors closed and locked</li><li>• Adjust side view and rear mirrors</li><li>• Adjust vents and temperature controls</li><li>• Adjust steering wheel</li><li>• Fasten seat belts</li><li>• Store mobile devices</li></ul>	<ul style="list-style-type: none"><li>• Stop vehicle in desired parking space</li><li>• Set parking brake if parked on grade</li><li>• Turn off headlights, wipers and any other accessories</li><li>• Turn ignition key/switch to off position</li><li>• Lock ignition and remove key</li><li>• Remove seat belts</li><li>• Check traffic (look, latch, leap, leave)</li><li>• Secure doors and windows</li></ul>

## SESSION 2 BTW - BASIC VEHICLE CONTROL

### **Topics Addressed:**

- Making routine vehicle checks and adjustments prior to and after entering the vehicle
- Location of alert and warning symbol lights
- Control the vehicle to avoid roll or skid
- Identify vehicle reference points and explain how they assist when driving, turning, backing, and parking
- Define following distance and the importance in mitigating risk in the highway transportation system (HTS)

### **Description of Suggested Driving Route:**

Low risk environment, such as parking lots and parks

### **Supporting Topics for Discussion:**

- How to move into and out of traffic
- Tracking, aiming, and correcting drifts
- How to track (aim) in a turn
- How to steer in a turn (action)
- Signaling for lateral moves
- SMOG (Signal, Mirror, Over Shoulder, Go)
- Positioning in a lane for turns
- Tips for perpendicular and angle parking
- Dangers to be aware of for the skills being learned

### **Fundamental Driving Skills:**

- Tracking - forward and backward
- Left Turns - rolling and static
- Right Turns - rolling and static
- Pulling into and out of perpendicular parking
- Pulling to and from shoulder/curb
- Backing up straight line

- Backing up turning
- Proper use of signals
- Proper positioning for turns
- Monitoring gauges while driving
- Use of visual targeting techniques
- 2-point turn procedures
- Continuing and improving basic skill development
- Chaining skills

#### **Supporting Learning Activities:**

- **Activities for the Student Driver While Behind the Wheel:**
  - [Instructor's Driver Skills Checklist](#)
- **Activities for the Student Observers:**
  - [Instructor's Observer's Participation Checklist](#)
  - [Activity 2.1](#)

#### **Supporting Activities for Parents/Guardians to Complete with Their Student Driver:**

- Associated Sections of Children's Hospital of Philadelphia "*TeenDrivingPlan*" Practice Guide
- Associated National Safety Council "*DriveitHome*" Pointers for Parents

#### **Assessment Tools:**

- On-going Evaluation Sheet
- Student Card Rating Score 5-4-3-2-1
- Skill/Observation Scores
- Ask observers to watch for 2 skill strengths and 2 skill weaknesses that each driver might improve on.

## SESSION 2 BTW SKILLS AND ACTIVITIES – BASIC VEHICLE CONTROL

<b><i>Instructor's Checklist of the Driver's Performance- check off the characteristics reviewed and demonstrated on various routes.</i></b>	
	Demonstrate proper aim and tracking (both forward and backward)
	Execute safe right and left turns while both rolling and stopped
	Execute pulling into and out of perpendicular parking spots
	Execute safe pulling towards and away from shoulder or curb
	Back up in a straight line
	Back up while turning
	Demonstrate proper use of turn signals
	Use proper vehicle and hand positioning for both right and left turns
	Identify, monitor and correctly use gauges and controls while driving
	Explain and execute proper use of visual targeting techniques
	Understand differing tire paths of front and back tires, when turning (off tracking of vehicles wheels/tires)
	Explain the importance of understanding the 4 zones of driving (front, rear, side, and inside zones)
	Demonstrate ability to check both left and right views: over the shoulder/blind spot checks and SMOG ( <u>S</u> ignal, <u>M</u> irror, <u>O</u> ver the Shoulder, <u>G</u> o) with hands on wheel

***Instructor's Checklist for Observer's Participation- discuss and review the following topics with the observers in the vehicle.***

	Tips for aiming and tracking (both forward and backward)
	Tips for left turns (rolling and from a stop)
	Tips for right turns (rolling and from a stop)
	Tips for pulling into and out of perpendicular parking
	Review steps for pulling to and from shoulder/curb
	Review steps for backing up straight line
	Review steps for backing up while turning
	Monitoring the proper use of signals
	Monitoring the proper positioning for turns
	Monitoring speedometer/ gauges while moving
	Understanding the use of visual targeting techniques
	Understanding off tracking of vehicles wheels/tires
	Checking if the driver is using good eye movement to check the rearview mirror as part of the front, rear, side, and inside zone
	Identify hazards in the driver's central cone of vision, side vision and blind spot/over the shoulder area
	Complete Activity 2.1

## Activity 2.1

**Instructions: While observing in-vehicle, discuss the following with your instructor.**

### Mirror Usage

1. Explain when the rearview mirror and outside mirrors should be checked.
2. Explain what a convex mirror is and how it can be used to help identify objects in the blindspots.
3. Discuss that the left side view mirror shows objects closer than they are.
4. Standing around the vehicle see how much and where a driver can't see objects from the driver's seat.

### Driving in Reverse

1. Discuss why backing is a high-risk maneuver and how to minimize the risk.
2. List the steps that you would take to safely back up your vehicle.

### Turnabouts

1. List the types of turnabouts a driver can make (examples in K-turn or 3-point turn, broken U-turn, 2-point turn, U-turn).
2. List five factors to consider before making a turnabout.
3. Explain what factors need to be considered when deciding what type of turnabout to use.

### Signaling

1. Demonstrate how to use hand signals in case your turn signals weren't working.
2. Discuss how can you tell if your turn signal lights or headlights aren't working?

## SESSION 3 BTW - SIGNS, SIGNALS, AND MARKINGS

### ***Topics Addressed:***

- The role signs, signals, and markings, play in controlling traffic flow and ensuring safe operation in the highway transportation system (HTS)
- How the color, shape, and size of signs and markings convey critical information in the highway transportation system
- How to apply SEE/SIPDE techniques to signs, signals, and markings
- The potential consequences of not obeying traffic control devices

### ***Description of Suggested Driving Route:***

Moderate risk traffic such as a business district, village, and/or township

### ***Supporting Topics for Discussion:***

#### **Colors for Traffic Signs:**

- Red
- Yellow
- White
- Black
- Green
- Brown
- Blue
- Orange
- Fluorescent yellow
- Fluorescent pink

#### **Shapes for Traffic Signs:**

- Octagon
- Triangle
- Diamond
- Circular

- Pentagon
- Rectangle

### **Types of Traffic Signs:**

- Regulatory
- Warning
- Construction
- Guide
- Incident

### **Traffic Signals:**

- Steady red/Steady yellow/Steady green
- Flashing red/Flashing yellow
- Flashing yellow arrow
- Red "X" and arrow
- Yellow "X" and arrow
- Green arrow
- Pedestrian lights
- Countdown timers
- Multiple left turn lanes
- Multiple right turn lanes

### **Special Vehicle Lights:**

- Side markers
- Vehicle back-up lights
- License plate light
- Vehicle turn signals
- High mounted brake lights
- Parking lights

### **Pavement Markings:**

- White lines (solid or broken)
- Yellow lines
- Double solid yellow lines
- Solid yellow line with a broken yellow line (on your side of center line)
- Solid yellow line with a broken yellow line (on far side of center)

- Blue curb or red curb
- Lane marker arrows
- Bicycle paths

### ***Fundamental Driving Skills:***

- Identify regulatory, warning, and guide sign classifications
- Understand the language of the road and apply the message and strategies
- Continue practicing and developing foundational operation and maneuvering skills

### ***Supporting Learning Activities:***

- ***Activities for the Student Driver While Behind the Wheel:***
  - [Instructor's Checklist for Driver Performance](#)
- ***Activities for the Student Observers:***
  - [Instructor's Checklist for Observer Participation](#)
  - [Activity 3.1](#)

### ***Supporting Activities for Parents/Guardians to Complete with Their Student Driver:***

- Associated Sections of Children's Hospital of Philadelphia "*TeenDrivingPlan*" Practice Guide
- Associated National Safety Council "*DriveitHome*" Pointers for Parents

### ***Assessment Tools:***

- On-going Evaluation Sheet
- Student Card Rating Score 5-4-3-2-1
- Skill/Observation Scores
- Ask observers to watch for 2 skill strengths and 2 skill weaknesses that each driver might improve on.

## SESSION 3 BTW SKILLS AND ACTIVITIES – SIGNS, SIGNALS, AND MARKINGS

<b><i>Instructor's Checklist for Driver's Performance- check off the skills reviewed and demonstrated on various routes.</i></b>	
	Identify various regulatory signs - type, location, placement, and meaning
	Identify various warning signs - type, location, placement, and meaning
	Identify various guide signs - type, location, placement, and meaning
	Identify various pavement markings - type, location, placement, and meaning
	Execute safe and proper actions at intersections: traffic lights, turning arrows, signs, and pedestrian interactions
	Respond properly to special vehicles (bus, emergency/first responders, construction, maintenance, and delivery/postal)
	While driving properly execute the Smith System - aim high, get the big picture, keep your eyes moving, leave yourself an out, and make sure others see you
	Properly apply the SIPDE ( <u>S</u> earch, <u>I</u> dentify, <u>P</u> redict, <u>D</u> ecide, <u>E</u> xecute) and SEE ( <u>S</u> earch, <u>E</u> valuate, <u>E</u> xecute) concepts when driving in various traffic situations
	Demonstrate improvement and growth of basic skills: tracking, turning, and lane positioning
	Driver can execute: start vehicle, pulling towards and away from the curb and shutting down & securing the vehicle

***Instructor's Checklist for Observer's Participation - discuss and review the following topics with the observers in the vehicle.***

	Identify various regulatory signs - type, location, placement, and meaning
	Identify various warning signs - type, location, placement, and meaning
	Identify various guide signs - type, location, placement, and meaning
	Identify various pavement markings - type, location, placement, and meaning
	Interpret right of way at traffic lights and arrow signals
	Explain what to do when special vehicle lights on police, ambulance, commercial and school buses are activated
	Complete Activity 3.1

## **Activity 3.1**

**Instructions: During a behind the wheel drive, monitor a busy intersection. List the traffic control devices you see and explain right of way at each. Share your answers with in-vehicle classmates.**

**Intersection location:**

**Traffic control devices observed:**

## SESSION 4 BTW – VISION AND SPACE

### ***Topics Addressed:***

- How to train our eyes to detect critical information and anticipate the actions of others in the highway transportation system
- Can we look at things and not see them?

### ***Description of Suggested Driving Route:***

Moderate risk environment, such as a residential or small village area

### ***Supporting Topics for Discussion:***

- SEE - Search, Evaluate, Execute
- SIPDE - Search, Identify, Predict, Decide, Execute
- Smith System
- Path of travel
- Field of vision
- Fringe vision
- Central vision
- Peripheral vision
- Zone control
- System/lane positions
- Target area
- Targeting path
- Line of sight
- Space cushion
- Closed areas of space
- Open areas of space
- Blind spots
- Driving limitations
- Visual lead
- Selective search

- Separate
- Compromise
- Space cushion
- 3-4 second rule

### ***Fundamental Driving Skills:***

#### **Vision and Zone Control**

- Apply SEE, SIPDE, and Smith System skills while driving in various environments and under various traffic conditions
- Recognize limited sight, limited space, and limited traction situations
- Apply zone control strategies
- Continue improving basic skill development

### ***Supporting Learning Activities:***

- ***Activities for the Student Driver while Behind the Wheel:***
  - [Instructor's Checklist for Driver's Performance](#)
- ***Activities for the Student Observers:***
  - [Instructor's Checklist for Observer's Participation](#)
  - [Activity 4.1](#)
  - [Activity 4.2](#)

### ***Supporting Activities for Parents/Guardians to Complete with Their Student Driver:***

- Associated Sections of Children's Hospital of Philadelphia "*TeenDrivingPlan*" Practice Guide
- Associated National Safety Council "*DriveitHome*" Pointers for Parents

### ***Assessment Tools:***

- On-going Evaluation Sheet
- Student Card Rating Score 5-4-3-2-1
- Skill/Observation Scores
- Ask observers to watch for 2 skill strengths and 2 skill weaknesses that each driver might improve on

- **Unit Grade - Total Sessions 1-4 Score Sheets**
  - Key: 25 x 4 = 100%, 20 x 4 = 80%, 15 x 4 = 60%, 10 x 4 = 40%
- [Unit 1 Evaluation Checklist](#)

## SESSION 4 BTW SKILLS AND ACTIVITIES – VISION AND SPACE

<i>Instructor's Checklist for Driver's Performance- check off the skills reviewed and demonstrated on various routes.</i>	
	Execute proper understanding of central vision skills
	Execute proper understanding of side vision skills (driveway, curb to curb and shoulder to shoulder)
	Execute and explain how peripheral vision is used when driving (objects from side)
	Execute proper understanding of depth perception vision (distance of objects)
	Execute proper use of fringe vision when driving (speedometer, lights and accessories)
	Identify how color contrast: dark vs. light areas (color contrast, shadows, sun setting and rising) affect driving
	Identify how vehicle blind spots vs. environmental blind spots (vehicle blind spots: created by vehicle) (environmental blind spots: buildings, trees, shrubs, etc.) affect driving and safety
	Explain how acuity (far vs. near vision) affects driving and safety in various environments
	Identify line of sight affect driving and safety
	Identify path of travel: open, closed, or changing
	List and execute first 3 rules of Smith System: aim high, get the big picture and keep your eyes moving
	List and apply the four-corner intersection sweep - left, right, left again
	List and explain: SIPDE - <u>S</u> earch, <u>I</u> dentify, <u>P</u> redict, <u>D</u> ecide, <u>E</u> xecute in various traffic situations
	Apply and execute the concepts: 20 second visual lead (intended path of travel) and 12 second hazard detection (identify potential hazards)

	Driver explains and executes proper following distance space cushion rule
	Driver and passengers explain and apply separating or compromising risks when appropriate
	Driver improved performing driving skills

***Instructor's Checklist for Observer's Participation - discuss and review the following topics with the observers in the vehicle.***

	Using central vision skills identify potential hazards in the front zone
	Explain why using side vision skills is critical
	Demonstrate peripheral vision and explain how this helps when changing lanes
	Find places along the driving route where depth perception is important
	Looking at the traffic scene recognize how fringe vision works
	Identify color contrast areas in traffic: dark vs. light areas in the traffic scene
	Recognize vehicle blind spots vs. environmental blind spots
	Provide examples of situations where a driver needs far vs. near vision
	Designate observers the job of monitoring SIPDE Process- <u>S</u> earch, <u>I</u> dentify, <u>P</u> redict, <u>D</u> ecide, <u>E</u> xecute during the drive
	Designate observers the job of monitoring the 5 steps of the Smith System: aim high, get the big picture, keep your eyes moving, make sure others see you, always leave yourself an out
	Four corner intersection sweep - left, right, left again

	Identifying line of sight problems
	Identifying path of travel decisions: open, closed, or changing
	Demonstrating how to establish a good following distance space cushion rule
	Complete Activity 4.1
	Complete Activity 4.2

## Activity 4.1

**Instructions:** For the next two blocks use the SPIDE process to complete the activity below.

1. I identified the following hazards...

2. I predicted...

3. I would have decided...

4. What action did our driver execute?

5. Was the driver's action correct?

## **Activity 4.2**

**Observers will demonstrate how to tell if the driver is using proper use of Visual Lead Time (VLT) and Following Distance (FD) strategies.**

**Instructions: The observers will calculate appropriate visual lead times and following distances based on the vehicle's speed, using the counting method. When the vehicle ahead of you passes a certain point, such as a sign, count "one-thousand-one, one-thousand- two, one-thousand-three".**

**Observers will determine the VLT and FD that will need to be employed while driving at different speeds.**

**Instructions: Observers will calculate visual lead time and following distance by counting out loud the following time/distance while driving.**

**Observers will explain the inherent risks when the two strategies above are not employed.**

**Note: These strategies should always be employed behind the wheel.**

**Unit 1  
(Sessions 1-4)**

**BTW SKILLS – ASSESSMENT CHECKLIST**

**Assess the characteristics reviewed on various routes using 5-4-3-2-1 (5=Excellent to 1=Poor)**

<b>Know Your Vehicle</b>	
	Pre-drive check - outside of vehicle, seat, mirrors, seat belt, occupants, gauges
	Proper starting/shutdown procedures - gear selection, headlights on, headlights off, key, check for passengers
	Starting/stopping smoothly, tracking, turning, look/lever/look/leave, complete driver rotation
<b>Basic Vehicle Control</b>	
	Proper aim and tracking, rolling/stopped left and right turns, backing, pulling into and out of perpendicular parking spots
	Demonstrates proper use of turn signals, proper positioning (vehicle/hand) for turns, proper use of visual targeting techniques
	Explain importance of the 4 zones of driving, demonstrate ability to check left/right blind spots while maintaining vehicle position
<b>Signs, Signals, and Markings</b>	
	Identify various regulatory/warning/guide signs, identify various pavement markings
	Executes safe and proper actions at various types of intersections
	Properly apply SIPDE/SEE concepts when driving
<b>Vision and Space</b>	
	Can identify line of sight/path of travel, driver can properly use central/peripheral/fringe vision
	Explains and executes proper following distance
	Explains and applies separating or compromising risks when appropriate

	<p style="text-align: center;"><b>Overall Assessment of Driving Skills to Date</b> <b>5-4-3-2-1 (5=Excellent to 1=Poor)</b></p>
<p><b>NOTES</b></p>	