Chapter : 10 Vehicle Control and Driving Maneuvers

Unit: 3

Stage 1 – Identify Desired Results

Established Goals

After completing this unit, students will…

1. Identify all vehicle controls and demonstrate an understanding of their importance as they relate to starting, braking, acceleration, and steering a motor vehicle.
2. Recognize and demonstrate an understanding of the natural laws and forces encountered when driving, and their apparent risk while operating a motor vehicle.
3. Describe and execute important driving maneuvers, including parallel parking, 3 point turns, lateral maneuvers and perpendicular/angle parking.

Essential Questions

1.1 What is the potential impact for you and your passengers when operating a vehicle without the knowledge and skills of proper vehicle control? 1.2 What important checks and procedures should be made before your vehicle is put in motion? 1.3 Why is it important to understand and execute basic driving maneuvers?	2.1 What can you do to respond to natural laws and forces while driving in different climates and terrains? 2.2 How can you reduce risk when responding to the many effects of natural laws and roadway forces?	3.1 What are some situations that you may be faced with that require the use of a driving maneuver? 3.2 Describe each of your responsibilities when performing any lateral maneuver?

Desired Understandings

1.1 There are a number of vehicle controls within your car that must be used properly in order for your car to function safely and efficiently. 1.2 Certain pre-start checklist items must be performed in specific order before the car is ever put in motion. 1.3 As a road user it is important to understand and execute basic driving	2.1 Different roadway environments require an understanding of how to respond to driving forces and natural laws in order to operate a vehicle safely and effectively. 2.2 As a road user it is important to understand how to effectively use car controls in order to reduce risk when confronted with	3.1 When driving, it is necessary to identify when to use an appropriate driving maneuver to respond to specific situations or conditions. 3.2 When driving, it is important to be able to execute different types of lateral maneuvers using

maneuvers when confronted with a variety of driving situations.	different driving environments.	accepted visual habits in specific order.
Key Knowledge and Skills		
Students will know…		
1.1 and understand the potential risk for them and their passengers when operating a car without the proper knowledge and skills of vehicle control. 1.2 All of the critical procedures and checks necessary before putting their vehicle in motion. 1.3 How to effectively use acceleration, braking and steering operate and control their vehicle safely.	2.1 and understand the potential hazards of natural laws and driving forces and their subsequent effect on vehicle control. 2.2 How to minimize the risks of natural laws and forces while driving a motor vehicle.	3.1 and understand the various driving maneuvers available to them. 3.2 How to appropriately execute all types of vehicle maneuvers.
Students will be able to…		
1.1 Demonstrate appropriate knowledge and skills of vehicle control when operating a motor vehicle. 1.2 Identify all of the critical procedures and checks before putting their car in motion. 1.3 Maintain efficient control of their vehicle with effective use of the inputs, acceleration, braking and steering.	2.1 Identify all of the natural laws and forces that affect common vehicle control. 2.2 Use vehicle controls properly in order to minimize the inherent risks of natural laws and forces.	3.1 Identify basic driving maneuvers 3.2 Demonstrate an understanding of when and how to perform basic driving maneuvers.
Audience		
This unit is designed for high school driver education students, ages 16-18, who are enrolled in a Driver and Traffic Safety Training Course.		

Stage 2 – Determine Acceptable Evidence		
Goal 1	**Goal 2**	**Goal 3**
Performance Tasks		
Working as part of a small group, the student will: A. Develop a checklist of pre-start items in relevant order to be used before starting their vehicle B. Determine the best hand position on the steering wheel for optimum control and explain why.	Students will be able to identify and discuss vehicle condition and control in relation to minimizing risk when exposed to slides/videos depicting various roadway terrains, conditions and climates.	As part of class discussion, students will be able to describe the critical skills necessary to perform basic vehicle maneuvers. Students will be able to identify the critical steps involved in each maneuver when performed by a professional driver.
Other Evidence		
The students will describe and discuss proper use of threshold braking as it relates to anti-lock brakes. The students will describe and discuss proper use of acceleration in different driving situations and how to maintain a consistent speed.	Student will demonstrate the ability to check tires for proper tread depth and tire pressure. The student will explain how a tire's tread depth and pressure directly relate to friction and driving safely.	Students will use model cars to demonstrate driving maneuvers and how differences in tracking effects each maneuver.
Student Self-Assessment and Reflection		
The students will record the master list of best practices in their journal, and identify the skills they would like to improve and/or modify in their current driving behavior.	The student will reflect on any condition of their personal or family car that might put them at risk when responding to the many forces and natural laws of driving.	Students will develop a list of conditions and incidences they have experienced that required implementing a driving maneuver either personally or by another driver.

Stage 3 – Plan Learning Experience		
	Activity	**W, H, E1, R, E2**[1]
Goal 1	**1. Small Group Activity** 2. Class Discussion 3. Presentation & Class Discussion **4. Journal Activity** **5. Short Quiz** **6. Supporting BTW Activity**	W, H, E1, E2 W, H, E1 W, H, E1, R **R, E2** **E2** **R,E2**
Goal 2	1. Reflection and Group Discussion 2. Small Group Activity **3.** Presentation and Class Discussion **4. Journal Activity** **5. Short Quiz** **6. Supporting BTW Activity**	W, H, E1 W, H, E1 W, H, E1, R **R, E1, E2** **E2** **R, E2**
Goal 3	1. Reflection and Group Discussion 2. Small Group Activity **3.** Presentation and Class Discussion **4. Journal Activity** **5. Short Quiz** **6. Supporting BTW Activity**	**W, H, E1, R, E2** W, H, E1 **W, E1, R, E2** H, E1, R, E1 **W, E1, R, E2** W, H, E1 **E2** **R, E2**
Technology/Resources		
Internet Access, Ability to Project Slides/Videos, Black/White Board or Easel, Notepads, Student Notebook, Student Journals, Model Cars, Prestart Checklist, Securing a Vehicle Check List		

[1] **W,H,E1,R,E2 – an acronym for considering and self-assessing the key elements and logic of a learning plan.**
W: Where – ensuring that the student sees the big picture, has answers to the "why?" questions, knows the final performance expectations
H: Hook – immersing the student immediately in the ideas and issues of the unit, engaging the student
E1: Equip and Experience – providing the student with tools, resources, skills and information needed to achieve the desired understandings and accomplish the performance tasks
R: Rethink – enhance understanding by shifting perspective, considering different theories, challenging prior assumptions, introducing new evidence, providing the opportunity to revise/polish prior work
E2: Evaluate – ensuring that students get diagnostic and formative feedback and opportunities to self-assess and self-adjust

10.1 Identifying the Vehicle Controls as they Relate to Starting, Braking, Acceleration, and Steering

Section Goal:

1. After successfully completing this unit the student will be able **to** identify all vehicle controls and demonstrate an understanding their importance as they relate to starting, braking, acceleration, and steering a motor vehicle.

Essential Questions:

1. What is the potential impact for you and your passengers when operating a vehicle without the knowledge and skills of proper car control?
2. What important checks and procedures should be made before your vehicle is put in motion?
3. Why is it important to understand and execute basic driving maneuvers?

Desired Understandings:

1. There are a number of vehicle controls within your car that must be used properly in order for your car to function safely and efficiently.
2. Certain pre-start checklist items must be performed in specific order before the car is ever put in motion.
3. As a road user it is important to understand and execute basic driving maneuvers when confronted with a variety of driving situations.

Key Knowledge and Skills:

Students will know . . .

1. All of the driving maneuvers available to them.
2. How to understand and appropriately execute common vehicle maneuvers.

Students will be able to . . .

1. Operate a motor vehicle with the proper knowledge and skills of vehicle control.
2. Identify all of the critical procedures and checks before putting their car in motion.
3. Maintain efficient control of their vehicle with effective use of the inputs, acceleration, braking and steering.

Learning Experience Outline (Items in bold represent Assessment Activities):

1. **Small Group Activity**
2. Class Discussion
3. Presentation & Class Discussion
4. **Journal Activity**
5. **Short Quiz**

Learning Experience Activity 10.1:

1. Small Group Activity

Begin the unit by having the students break up into small groups to discuss relevant car inputs and controls. This small group activity is designed to help students think about the various vehicle controls and devices that are necessary to operate their motor vehicle safely and efficiently.

- ***Materials necessary include****: a* black/white board*, an activity handout (see sample resources), and notepads for each group.*

Instructions: Have the students break up into small groups based on the class size. Each group will be tasked with four items directly related to controlling and operating a motor vehicle. Students will discuss the pre-start checklist, proper use of braking, steering wheel hand position, and proper use of accelerator; and formulate a consensus list for each. One person will be designated to record group responses and another will be a speaker for the group. The lists will be displayed by the instructor as the groups present.

2. Class Discussion

Once all of the groups have presented and master list has been formulated, the instructor facilitates a class discussion resulting in class consensus lists they feel address all four tasks effectively.

Materials necessary include: *a black/white board or an easel and student notebooks.*

Instructions: Instructor initiates and facilitates a group discussion guiding students to draw from the group responses to generate class consensus lists they feel identifies the best practices for each of the four topics. Record the consensus lists developed through the class discussion on the board. Have students record the lists in their notebooks.

3. Presentation & Class Discussion

Following development of the consensus lists, the Teacher will provide a brief presentation which explains and illustrates the key knowledge and skills targeted.

Materials/Resources and Technology needed: a means to present digital slides and videos, Internet access, Vehicle Control Slides and/or Videos (see sample resources)

Instructions: The Instructor provides a presentation that includes vehicle pre-start procedures, including a visual check of the outside of the vehicle, steering wheel hand position, proper braking technique (discuss ABS), as well as, accelerator use and hand over hand steering technique. Utilizing digital slides and/or videos which define, explain, and illustrate or demonstrate these key concepts and skills, (see suggestions in sample resources section), will enhance the effectiveness of the presentation. Have the students discuss the key concepts and skills from the lesson and record them in their notebooks.

4. Journal Activity

Following the presentation, have the students reflect on, and write about, the effective vehicle control techniques they have learned in this lesson. Have them begin with their initial thoughts (small group activity) and explain the resulting key concepts and skills which were presented.

Materials needed: *Notebook (for reference), and Student Journal*

Instructions: Have the students compare and contrast their ideas generated from the small group discussions and large group instructor lead instruction with accepted pre-start and vehicle control protocol.

5. Short Quiz

Complete this activity by having the students complete a short quiz focusing on the key concepts and skills conveyed.

Materials: *teacher constructed brief quiz. (See sample resources for an example)*

Instructions: Administer a brief quiz on the pre-start and vehicle control concepts from this lesson.

6. Supporting BTW Activity

Review and practice employing the pre-drive checklist and securing a vehicle checklist tasks and common driving maneuvers.

Instructions Activity 1: Have each perform the tasks on the pre-drive checklist explaining 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 Pre-start and Securing a vehicle Check List:

Pre-Start Checklist

- A visual check should be made to inspect the outside of car and area surrounding the car before entering.
- Key in Ignition/ (Disregard if Push Button Start)
- Adjust the Seat
- Adjust Head Rest
- Doors Closed and Locked
- Adjust Side View and Rear Mirrors
- Adjust Vents and temperature Controls
- Adjust Steering Wheel
- Fasten Seat Belts
- Store Mobile Devices

Securing Vehicle Check list

- *Stop Vehicle in Desired Parking Space*
- *Set Parking Brake if Parked on Grade*
- *Turn Off Headlights, Wipers and any other Accessories*
- *Turn Ignition Key/Switch to Off Position*
- *Lock Ignition and Remove Key*
- *Remove Seat Belts*
- *Check Traffic (look, latch leap)*
- *Secure Doors and Windows*

Instructions Activity 2: During a regularly scheduled in-car driving session students will demonstrate and practice the 3 point (K Turn) driving maneuver. This lesson is best served on a lightly traveled, curbed road. Students will demonstrate their ability to use quick hand over hand steering while effectively braking and accelerating to correctly perform this change of direction maneuver.

Record the student's performance on these activities, and share the results with the classroom instructor (if different instructors).

10.2 Recognizing and Responding to The Natural Laws and Forces That Impact Driving

Section Goal:
After successfully completing this unit the student will be able **to** recognize and demonstrate an understanding of the natural laws and forces encountered when driving and the risk they may pose when operating a motor vehicle.

Essential Questions:
1. What can you do to respond to natural laws and forces while driving in different climates and terrains?
2. How can you reduce risk when responding to the many effects of natural laws and roadway forces?

Desired Understandings:
1. Different roadway environments require an understanding of how to respond to driving forces and natural laws in order to operate a vehicle safely and effectively.
2. As a road user it is important to understand how to effectively use car controls in order to reduce risk when confronted with different driving environments.

Key Knowledge and Skills:
Students will know . . .
1. and understand the potential hazards of natural laws and driving forces and their subsequent effect on vehicle control.
2. how to minimize the risks of natural laws and forces while driving a motor vehicle.

Students will be able to . . .
1. identify all of the natural laws and forces that effect common vehicle control.
2. use vehicle controls properly in order to minimize the inherent risks of natural laws and forces.

Learning Experience Outline (Items in bold represent Assessment Activities):
1. Reflection and Group Discussion
2. Small Group Activity
3. Presentation and Class Discussion
4. **Journal Activity**
5. **Short Quiz**
6. **Supporting BTW Activity**

Learning Experience Activities 10.2: Recognizing and Responding to the Natural Laws and Forces that Impact Driving

1. Reflection and Group Discussion

In this activity the students will reflect on a personal experience they have had when natural laws and driving forces negatively impacted a vehicle as a result of improper handling, and how proper vehicle control techniques could have been employed to reduce or eliminate risk.

> ***Materials needed****: Black/White Board or Easel to record student suggestions and key points*

Instructions: Begin the lesson by asking the students to reflect on a personal experience they have had when they, or someone they know, improperly responded to driving forces or natural laws in a given driving environment. Have them reflect and discuss what could have been done by the driver to avoid the incident, as well as, what might be done by road engineers to make the situation safer? Record the key concepts and understandings from this discussion for the class to view.

2. Small Group Activity

Having the students view illustrations of a variety of roadways where natural laws and driving forces pose an inherent danger will provide an opportunity for them to begin applying the information discussed in the previous activity.

> **Materials needed:** Illustrations depicting: Uphill Road, Downhill Road, Sharp Left Curve, Downhill Curve, and Dirt Road

Instructions: Divide the students into small groups and assign each group an illustration of a roadway that poses different risks in relation to driving forces and natural laws. Have the groups brainstorm the risks presented and how their group would use proper vehicle control and maintenance to minimize those risks. Have each group present their conclusions to the class and facilitate a discussion that underscores the key understandings and skills for this lesson.

3. Presentation & Class Discussion

Provide a brief presentation which identifies, explains and illustrates the impact natural laws and forces can have on a vehicle while driving.

> **Materials/Resources and Technology needed:** a means to present digital slides and videos, Internet access, Vehicle Control Slides and/or Videos (see sample resources)

Instructions: The Instructor will provide a presentation that focuses on how natural laws and forces can impact a vehicle while driving. Referring to the conditions illustrated and discussed in the small group activity, provide explanations and professional demonstrations of anticipating, and effectively responding to, the adverse effect these force can present. Utilizing digital slides and/or videos which define, explain, and illustrate or demonstrate these key concepts and skills will enhance the effectiveness of the presentation. Have the students discuss the key concepts and skills from the lesson and record them in their notebooks.

4. Journal Activity

Following the presentation have the students reflect on, and write about, the techniques presented for anticipating and effectively responding to the impact natural laws and forces present while driving in their Journals. Have them reflect on how these skills may have impacted the personal incidents discussed in the first activity.

Materials needed: *Notebook (for reference), and Student Journal*

Instructions: Have the students compare and contrast their ideas generated from the small group discussions and large group instructor lead instruction with accepted pre-start and vehicle control protocol.

5. Short Quiz

Complete this lesson by having the students complete a short quiz focusing on the key concepts and skills conveyed to assess the degree to which they can demonstrate their knowledge and application of the key concepts conveyed.

Materials: *teacher constructed brief quiz. (See sample resources for an example)*

Instructions: Administer a brief quiz on the vehicle control concepts from this lesson.

6. Supporting BTW Activity

Have the students check the tread depth and pressure of various tires and identify different risks imposed by improper tire tread depth.

Instructions: Having already identified various road conditions and terrains, have the students check selected cars in the parking lot for proper tread depth. This activity can be performed by using a Lincoln head penny and observing the amount of the head exposed. Identify vehicles that failed the tread check and discuss the dangers they may face when driving on different road contours and in different driving climates. In addition, discuss and demonstrate, using the driver ed. car, how to determine and check the appropriate tire pressure.

10.3 Describe and Execute Important Driving Maneuvers

Section Goal:
After successfully completing this unit the student will be able **to** describe and execute important driving maneuvers, including parallel parking, 3 point turn, lateral maneuvers and perpendicular/angle parking.

Essential Questions:

1. What are some situations that you may be faced with that require the use of a driving maneuver?
2. Describe each of your responsibilities when performing any lateral maneuver?

Desired Understandings:

1. When driving, it is necessary to identify when to use an appropriate driving maneuver to respond to specific situations or conditions.
2. When driving, it is important to be able to execute different types of lateral maneuvers using accepted visual habits in specific order.

Key Knowledge and Skills:

Students will know . . .

1. and understand the various driving maneuvers available to them.
2. How to appropriately execute all types of vehicle maneuvers.

Students will be able to . . .

1. identify basic driving maneuvers
2. demonstrate an understanding of when and how to perform basic driving maneuvers.

Learning Experience Outline (Items in bold represent Assessment Activities):

7. Reflection and Group Discussion
8. Small Group Activity
9. Presentation and Class Discussion
10. **Journal Activity**
11. **Short Quiz**
12. **Supporting BTW Activity**

Learning Experience Activity 10.3: Describe and Execute Important Driving Maneuvers

1. Reflection and Class Discussion

Begin the lesson with a brief definition of a driving maneuver, and ask the students to discuss when driving maneuvers become necessary.

Materials needed: *White/black board*

Instructions: Begin by providing a brief definition of a driving maneuver. Have the students provide examples of driving maneuvers, and compile a list of the situations they may encounter that would require implementing a specific driving maneuver. Record all responses for the class to view. Based on student responses from the class activity, the instructor will facilitate a discussion identifying the 3 of the most frequently used maneuvers drivers will perform during normal driving; including changing lanes, parking and three point turns.

2. Group Activity

This activity is designed to help students better understand car positioning and how tire tracking will differ during a variety of lateral maneuvers.

Materials needed: *model cars and illustration depicting specific roadway example (may use plastic vellum and dry erase pens).*

Instructions: Divide students into small groups and provide each group with a model cars (or drawings if model cars not available), Have the groups use the models or drawing to illustrate properly executing the assigned maneuver. Have the students compile a consensus list of the steps required to perform the assigned maneuvers in sequential order. Have them record their lists to discuss with their in-car instructor.

3. Presentation & Class Discussion

Following the small group activity, provide a brief presentation which explains and illustrates the common driving maneuvers employed while driving.

Materials/Resources and Technology needed: a means to present digital slides and videos, Internet access, Vehicle Control Slides and/or Videos (see sample resources)

Instructions: The Instructor will provide a presentation that focuses on common driving maneuvers. Facilitate a class discussion, having the students compare and contrast the proper techniques with the list of techniques that they developed in the previous activity. Provide visual illustrations or videos that demonstrate the common driving maneuvers. Utilizing digital slides and/or videos which define, explain, and illustrate or demonstrate these key concepts and skills will enhance the effectiveness of the presentation. Have the students discuss the key concepts and skills from the lesson and record them in their notebooks.

4. Journal Activity

Following the presentation have the students reflect on, and write about, the common driving maneuvers covered in this lesson in their Journals. Have them reflect on how these skills learned in this lesson might change how they have executed these maneuvers in the past; or how they differ from behaviors of other drivers they have observed.

Materials needed: *Notebook (for reference), and Student Journal*

Instructions: Have the students reflect on, and write about, the common driving maneuvers covered in this lesson, making reference when the maneuver would be employed and to the key steps in executing the maneuvers in their Journals. Have them reflect on how these skills learned in this lesson might change how they have executed these maneuvers in the past; or how they differ from behaviors of other drivers they have observed

5. Short Quiz

Complete this lesson by assessing student comprehension and retention using a short quiz focusing on the key concepts and skills conveyed.

Materials: *teacher constructed brief quiz. (See sample resources for an example)*

Instructions: Administer a brief quiz on the vehicle maneuvers presented in the lesson, including the steps required to execute them effectively and safely.

6. Supporting BTW Activity

This activity is designed to help students better understand and practice executing appropriate vehicle maneuvers in a driving situation.

Instructions: Review the common driving maneuvers having the students explain the steps employed to effectively execute the maneuver being practiced. Have the students execute the maneuver employing each of the steps discussed. In addition, have the student observe other road users execute driving maneuvers, including lateral maneuvers, while a passenger in the Driver Education car or when driving with a family member or friend. Have them record in their journals different driver's technique while performing these driving maneuvers. Make note of what they feel these drivers did well and where they might improve.

Supplemental Materials Appendices:

The following are samples of resource materials that may be used to supplement the instructional activities in this chapter.

Lesson 1.1 Small Group Activity

Lesson 1.1 Class discussion

Lesson 1.1 Videos

Lesson 1.1 Power Point Slides

Lesson1.1 Journal Activity

Lesson 1.1 Short Quiz

Lesson 1.2 Discussion

Lesson 1.2 Small Group Activity

Lesson 1.2 Field Activity

Lesson 1.2 Power Point Slides

Lesson 1.2 Video

Lesson 1.2 Short Quiz

Lesson 1.3 Observation

Lesson 1.3 Learning Strategies

Lesson 1.3 Interaction and Reaction

Lesson 1.3 Demonstration

Lesson 1.3 Power Point Slides

Lesson 1.3 Video

Lesson 1.3 Short Quiz

Lesson 1.1 Small Group Activity

Name_____ ***Date_____***

Instructions: Your instructor will divide you into small groups and task you to come to group consensus on 4 items concerning vehicle control. Be ready to present to entire group with your findings.

Question 1: Develop a pre-start checklist in relevant order. Use as many steps as your group deems necessary.

1.
2.
3.
4.
5.
6.
7.
8.

Question 2: Discuss and formulate a short list of proper use of Braking when:

a. Approaching a red light

b. Going through an intersection

c. Deer Runs out in front of your car

Question 3: What hand placement on the steering wheel is desirable and why?

Question4: Discuss the proper use of the accelerator pedal in the following situations:

a. Heading up a steep hill from a flat roadway-

b. Heading down a large hill-

c. Approaching a light that has been green for a while-

d. Passing a vehicle on the expressway-

Notes:

Lesson 1.1 Class Discussion

Instructions: Once the small groups have completed their work instructor will bring them back together to compile a list of best practices on the blackboard.

1. ***Pre-start Checklist – (****including a visual check of the outside of the vehicle to insure there are no objects, people, or animals around or under the car or tires before entering)*

2. ***Use of Braking –*** *(note that ABS will create a "pulsing/vibrating foot sensation", that is normal, continue to brake.)*

3. ***Steering Wheel***

4. ***Use of Accelerator***

Lesson 1.1 Videos

Instructions: Students will view the following short <u>AAA series</u> of Driving Videos available on YOUTUBE.

"Mirror Adjustments"
https://www.youtube.com/watch?v=BYdPSEYX7ms

"Positioning of the Gas Pedal"
https://www.youtube.com/watch?v=NGC-nqqPBTg

"Positioning of the Brake Pedal"
https://www.youtube.com/watch?v=7TAQENnBavo

"Operation of Vehicle Control"
https://www.youtube.com/watch?v=a-pAWXSw4WU

"Proper Steering Improves Safety"
https://www.youtube.com/watch?v=eW1IA_XKFjo

You might also consider:

"Basic Car Control" ADI -https://www.youtube.com/watch?v=_x1b0P2YoQk
"Precision turns" AAA - https://drivertraining.aaa.biz/product/how-to-drive-videos/
"How to Check for Blind Spots" (Drivers Ed for America) -
https://www.youtube.com/watch?v=8jlNN_Y-Pg8
"Unlocking the Mystery of Anti-lock Brakes" (AAAIT)
https://www.youtube.com/watch?v=fEudqGL5n2Y

Access to additional AAA videos can be purchased from the following web page:
https://drivertraining.aaa.biz/product/how-to-drive-videos/

Lesson 1.1 Power Point Slides

Instructions: Students will view a power point presentation on vehicle control including pre-start, steering, braking and acceleration.

Power Point Slides- www.driveredcoach.com/resources driver education

Basic Controls

- Hand Over Hand Steering
- Driving in Reverse
- Lateral Maneuver

1. Signal
2. Mirror
3. Blind Spot Check

- Instrument Checks
- Stopping (X-walk, stop line, no line, Behind cars)

Basic Controls

- Hand Position on Wheel
- Braking
- Pre-Start Protocol

1. Adjust Seat
2. Adjust Mirrors
3. Seat Belt
4. Head Rest
5. Lock Doors

1.1 Journal Activity

Instructions: After viewing the videos and power point presentation, students will compare and contrast their small group finding with accepted vehicle control procedures. Make note of current driving practices that may have to be adjusted and modified in order to achieve maximum vehicle control.

Notes:

Lesson 1.1 Supporting BTW Activity

Instructions Activity 1: Have each perform the tasks on the pre-drive checklist explaining 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 Pre-start and Securing a vehicle Check List:

Pre-Start Checklist

- A visual check should be made to inspect the outside of car and area surrounding the car before entering.
- Key in Ignition/ (Disregard if Push Button Start)
- Adjust the Seat
- Adjust Head Rest
- Doors Closed and Locked
- Adjust Side View and Rear Mirrors
- Adjust Vents and temperature Controls
- Adjust Steering Wheel
- Fasten Seat Belts
- Store Mobile Devices

Securing Vehicle Check list

- *Stop Vehicle in Desired Parking Space*
- *Set Parking Brake if Parked on Grade*
- *Turn Off Headlights, Wipers and any other Accessories*
- *Turn Ignition Key/Switch to Off Position*
- *Lock Ignition and Remove Key*
- *Remove Seat Belts*
- *Check Traffic (look, latch leap)*
- *Secure Doors and Windows*

Instructions Activity 2: During a regularly scheduled in-car driving session students will demonstrate and practice the 3 point (K Turn) driving maneuver. This lesson is best served on a lightly traveled, curbed road. Students will demonstrate their ability to use quick hand over hand steering while effectively braking and accelerating to correctly perform this change of direction maneuver.

Record the student's performance on these activities, and share the results with the classroom instructor (if different instructors).

1.1 Short Quiz

List all Driving Pre-start procedures in proper order:

1.
2.
3.
4.
5.
6.
7.
8.

Effective steering control comes from what hand position on the wheel?

9.

What is Threshold Braking?

10.

Lesson 1.2 Group Discussion

Instructions: Instructor will pose a question to class relating to an incident they or their family members may have been encountered that relates to the natural law or driving forces of the roadway. Discuss each incident and decide how vehicle control could have been handled differently. Record these incidents on the board.

1.

2.

3.

4.

5.

Notes:

Lesson 1.2 Small Group Activity

Instructions: Break the class up into small groups and provide each group with a slide that relates to roadway terrain and driving environments and explain the effective strategies for overcoming these driving forces and natural laws.

Infographics

1. Uphill Road
2. Downhill Road
3. Sharp Left Curve
4. Downhill Curve
5. Dirt Road

Notes:

Lesson 1.2 Power Point Slides

Instructions: Students will view a power point presentation highlighting natural laws and driving forces that affect common driving. Also effective procedures on how to effectively handle these laws and forces will also be discussed.

Sample Slides- www.driveredcoach.com/resources

Slides 35, 36, and 37
Driving Forces
Risk Acceptance
Driving Conditions

Driving Forces

- **Gravity**- pull on car toward center of earth
- **Centrifugal Force-** pull toward edge of road
- **Kinetic Energy-** Energy in motion, built up in car, without the engine
- **Inertia**- Body in motion tends…….
- **Friction**- 2 bodies resisting each other causing heat

1. Brake and brake drum
2. Tire and road surface

"Brakes stop the wheels not the car"

Risk Acceptance

- **Directly Minimize Risk-** occurs with one hazard, adjust speed or lane position
- **Indirectly Minimize Risk-** Something done long in advance of hazard, lock doors, fasten seat belt, beep horn etc.
- **Separate**- Facing 2 problems at same time! Deal with each separately.
- **Compromise**- Helping other drivers (clearing lane)

Driving Conditions

Traction

- Weather- rain, ice and snow
- Road condition
- Tire condition- 2/32" tread
- Weight of car
- Driving speed- overacceleration
- Curves

Visibility

- Fog- low beams
- Darkness- "overdrive" headlights
- Rain and Snow
- Other vehicles
- Glare
- Trees and bushes
- Windshield frost and fog

Lesson 1.2 Video

Instructions: Students will view a video showing natural laws and driving forces. The video will also show how to handle these laws and forces in different driving terrains and environments.

Video- "When Physics Meets Biology"

https://www.youtube.com/watch?v=hi2FEyV2Z2E

Natural Laws Affecting Driving

http://slideplayer.com/slide/6387719/

Understanding Car Crashes

https://www.youtube.com/watch?v=yUpiV2I_IRI

You might also consider:

"Centrifugal Force" Texas Driver Safety
https://www.youtube.com/watch?v=_x1b0P2YoQk
Recognize, React and Recover" "Roadway Safety"
https://www.youtube.com/watch?v=4YMnZDhLm3Q

Access to additional AAA videos can be purchased from the following web page:
https://drivertraining.aaa.biz/product/how-to-drive-videos/

Lesson 1.2 Short Quiz

Instructions: Students will take a short quiz on handling natural laws and driving forces.

Describe how each of these natural laws/forces affect your driving? How can you overcome these forces / laws?

1. **Inertia**

2. **Gravity**

3. **Centrifugal Force**

4. **Friction**

5. **Kinetic Energy**

Lesson 1.3 Observation - BTW

Instructions: Students will observe other roadway users performing many different lateral maneuvers. Observation time can be accomplished during behind the wheel (BTW) driver education training or during free driving time at home. Students should reflect on their observations and make notes on the mistakes these roadway users make. Notes will used in a large class discussion later to see where improvements can made by these roadway users.

Lesson 1.3 Learning Strategies

Instructions: In a large group setting, students will compile a list of times when they feel may need to perform a lateral maneuver. Instructor will record all the responses on the blackboard.

Notes:

Lesson 1.3 Interaction and Reaction

Instructions: Students will use results from previous learning strategies exercise to compile a list of the 3 most frequently used driving maneuvers.

Maneuver 1

Maneuver 2

Maneuver 3

Notes:

Lesson 1.3 Demonstration

Instructions: After deciding on the 3 most common driving maneuvers. Students will again break up into small groups and be given a toy/model car. Using the model car the students will demonstrate and list the sequential steps necessary to complete the driving maneuver successfully. Students will list those steps on sheet provided.

Maneuver 1

1. _____

2. _____

3. _____

4. _____

Maneuver 3

1. _____

2. _____

3. _____

4. _____

Maneuver 2

1. _____

2. _____

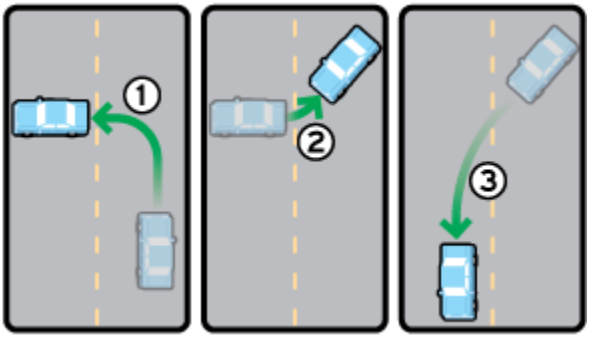
3. _____

4. _____

Lesson 1.3 Power Point Slides

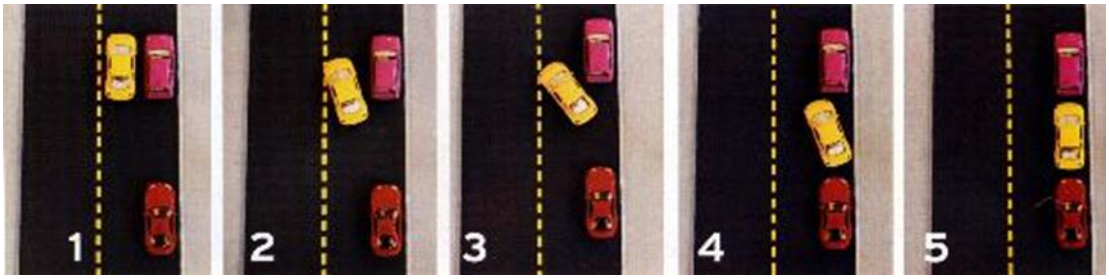
Instructions: Students will view a power point presentation on how to perform all driving maneuvers that they may face as road users.

Sample Slides-"Drivers Ed Guru" "Driver Ed Coach"
3 Point Turns
Parallel Parking
Change Lanes
Angled Parking
Driving Rules for Roundabouts



A 3 point turn or sometimes called a K turn is a simple change of direction movement. Only execute this maneuver when it is safe to do so.
Step1- Signal right and pull over to curb. Then crank your wheel all the way to the left (counter clockwise). Next signal left and roll slowly to the opposite side curb.
Step 2- Next we want to shift to reverse and with quick hands and crank the wheel right (clockwise). Roll back as you look back and continue to back up until you are confident you can complete the turn without hitting the curb.
Step 3- Finally shift to drive and crank the wheel left (counter clockwise) and complete the turn safely into your new lane.

Parallel Parking



Parallel parking is easy if you follow a few simple steps.

- **Step 1- Signal Right and align your car 2 feet away from the car you are parking behind. (Side view mirror aligned with side view mirror works best)**

- **Step 2- Crank your wheel all the way to the right (clockwise) and roll backwards as you look back.**
- **Step 3- Stop car when your mirror is aligned with back bumper of the other car and straighten your wheel (usually 1-2 cranks). This should form a 45 degree angle with the other car. Too much angle and you will hit the curb!**
- **Step 4- Continue to roll back straight just until your front end passes the other cars bumper, then immediately crank left (counter clockwise) with quick hands and roll back into spot.**
- **Step 5- Shift to drive and with quick hands again crank to the right toward the curb and roll forward. Make sure you finish with your wheels straight.**
- **Remember to always look in the direction you are moving! It is also important to understand that each step is merely a reference point, as you become more proficient you will become mainly concerned with the 45 degree angle since that is the main key.**

Angled parking

Angled parking spots are easier to navigate than 90-degree spots. They also create more parking spots in a given area than perpendicular spots. Angled parking spots can only be entered from one direction and must be entered "head-on". Backing into an angled spot is never preferred.
How to park in an angled parking spot

- **Position your car so that there is at least five to six feet between your car and the other parked cars.**
- **Once you find a space, signal. Continue driving forward until you can see the center of the parking space you wish to enter.**
- **As soon as you see the center of the space, turn the wheel sharply, about half a turn, and proceed slowly into the space.**
- **Once you come to a stop, straighten your wheels so that you begin backing out straight when you wish to exit the space.**

Information source: www.driveredguru.com

Changing Lanes

- Find a gap in traffic in the lane you wish to move into.
- Activate your turn signal.
- Check traffic ahead of and behind you in your rear view mirror to ensure it is clear.
- Check traffic one lane over from the lane you're going to move into to make sure no other car is trying to move into the same spot. This is extremely important.
- Use the side mirror to ensure that your blind spot is clear.
- Check your blind spot (check looking over your shoulder)

Driving Rules for Roundabouts

- Slow down when approaching a roundabout.
- Pick a lane as you approach a roundabout. To turn right, be in the right lane.
- To turn left, be in the left lane. To go straight, use either lane unless otherwise indicated.
- Yield to traffic in the roundabout. Vehicles in the roundabout have the right-of-way.
- Stay a safe distance behind trucks because they will usually use both lanes. Driving side-by-side with a truck in a roundabout can be risky!
- Do not stop within the circular portion of the roundabout.

*Information Source: Washington State DOT

Lesson 1.3 Video

Instructions: Students will watch a video showing when and how to perform all important vehicle maneuvers.

Videos: AAA Short Video Series

The following videos can be purchased through AAA's "How to Drive" series, which can be found at: https://drivertraining.aaa.biz/product/how-to-drive-videos/

"Changing Lanes"
"Turning Around"
"Parking"
"Precision Turns"
"Passing and Being Passed"

You might also consider:
"How to Parallel Park" Smart Drive
https://www.youtube.com/watch?v=U0uAFVeDUjs
"Passing and Being Passed" AAA
https://drivertraining.aaa.biz/product/how-to-drive-videos/

Access to additional AAA videos can be purchased from the following web page:
https://drivertraining.aaa.biz/product/how-to-drive-videos/

Lesson 1.3 Short Quiz

Instructions: Students will take a short quiz on driving maneuvers.

List the 3 important steps in order taken when performing any lateral maneuver:

1. _____
2. _____
3. _____

List all the steps in order to necessary to successfully Parallel Park:

1. _____
2. _____
3. _____
4. _____

List all steps in order necessary to perform a 3 point turn:

1. _____
2. _____
3. _____
4. _____

Unit 1 Key Terms

Pre-start Procedures
Hand over Hand Steering
Push Pull Steering
Threshold Braking
Anti-lock Brakes
Tracking Difference
Inertia
Kinetic Energy
Centrifugal Force
Friction
Gravity
Traction
Parallel Park
Three Point Turn
Lateral Maneuvers
Blind Spot
Angle Park