



Driving Maneuvers

Session Goals

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, three-point turns, lateral maneuvers and perpendicular/angle parking.

Key Vocabulary and Topics

- Steering techniques
 - Hand over hand
 - Push and pull
- Changing lanes
- SMOG
- Pulling away from curb
- Lateral moves
- Oversteering
- Understeering
- Right hand turns
- Left hand turns
- U-turn
- Two-point turn
- Three-point turn
- Parallel parking
- Angle parking
- Perpendicular parking
- Reference parking points
- Uphill/downhill parking
- Backing left and right

Review of Steering Techniques

Three steering techniques

- Hand-over-hand
- Hand-to-hand
- One-hand steering



Make sure to keep your thumbs poised on the outside of the wheel rather than using a full, tight grip

Hand-Over-Hand Steering

- Place your hands at the 9 & 3 o'clock positions on the steering wheel
- If making a Left turn - Use your right hand to push the wheel up and around until you reach the 12 o'clock position
- Your left hand then will cross the right hand to continue pulling in the left turn
- For a right turn – Use your left hand to push the wheel up and around until you reach the 12 o'clock position
- Your right hand then will cross the left hand to continue pulling in the right turn
- Once through your turn, loosen your grip on the steering wheel and let the steering wheel adjust itself so that the vehicle is going straight on the road



Hand-to-Hand Steering

- Beginning at the 9 & 3 o'clock positions on the wheel, one hand pushes up on the steering wheel while the other hand slides to the top and then pulls the wheel down, repeating the action until the turn is complete.
- This is sometimes called “feeding” the wheel, “push/pull steering” or “H-T-H” hand to hand steering technique. Both hands are always employed in the steering and wrists never cross.

Which technique works best for you; Hand-to-Hand or Hand-Over-Hand?



One-Handed Steering

- You can not pass your road test if you do one-handed steering. You must have both hands on the wheel.
- Why is it not recommended to use one-handed steering?
- When is it appropriate to use one handed steering?

Steering Discussion

- What is the correct hand position for driving on a straightaway?
- What is the correct hand position when backing up a vehicle?
- How do you know your wheels are straight?
- Why don't you want to wrap your thumbs around the wheel?

Mirror Review

Reminder: Your mirrors are essential for all driving maneuvers!

- When/how often should a driver use their mirrors?
- How do you know if your mirrors are adjusted properly?
- Should you adjust all the mirrors for night driving?

Using Your Turn Signals

- Develop the habit of using your turn signals EVERY TIME you plan to turn, change lanes, slow, or stop. This allows you to be seen by other drivers by attracting their attention.
- You should signal at least 100-150 feet before you turn in residential areas. You do not want to signal so far ahead of your turn that it causes confusion with other turns ahead.
- Signal at least 200 feet before if you are in the country or traveling at higher speeds.



Why do you think people don't use their turn signals?

Lateral Movement: Pulling Away from a Curb or Lane Changing

- Before changing your lane position (e.g. changing lanes or pulling away/to a curb), you must determine if the zone is open or closed or changing.
- You must signal your intention to change your position by using your turn signal
- Use the acronym SMOG to help you remember the steps
 - S – Signal intention
 - M – Mirror checks
 - O – Observe
 - G - Go

Pulling Toward a Curb

- Signal, check your mirrors, observe blind spots and the area around your vehicle, then brake.
- Why should you signal first then brake?

Note: After parking at the curb, your wheels must not be more than one foot from the curb.

- Look before you open the door and get out! Are you going to open it while cars or bicyclists are passing?

Pulling Away from the Curb

- Turn your signal on to show you want to move into traffic
- Check all your mirrors
 - Check your rearview mirror for pedestrians, bicyclists, motorcyclists, and other vehicles
 - Are there any other potentials you can spot in your rearview mirror? (close and oncoming)
 - Check your side mirrors? Do you see hazards near and approaching?
- Move your body and observe to the front of you, to the rear of you, and to the back of you
- When path is clear, you can accelerate smoothly into the lane (Go).
- Don't forget to turn off your turn signal!

Check for Understanding – Activity 1

- Explain the proper way to hold and adjust your steering wheel to assist in control and safety
- How do you know if your wheels are straight?
- When should you engage your turn signal?
- What does the acronym SMOG stand for?
- What is one of the first steps to take when preparing to pull away from the curb?

Turning: Key Concepts

- Signal 100-150 feet before the turn. Avoid signaling earlier than this to avoid any confusion about where you are planning to turn.
- Slow before you make the turn – Start slowly accelerating mid-way through the turn to complete it.
- Going too fast through a turn can cause you to overturn your car! You should not exceed 10-15 MPH on a 90 degree turn.
- Turning wide is also a problem for many drivers. It is caused by turning too late or failing to reduce speed in advance of the turn.

Review Chapter 5 of the NYS Driver's Manual for Additional Information

Additional Considerations When Preparing to Turn

- Search for traffic (e.g. vehicle, pedestrian, motorcycle and bicycle) on all sides of your vehicle. Look twice!
- Most crashes involving pedestrians, motorcyclists, and bicyclists are because the driver did not see them.
- Oversteering occurs when the car turns more than the driver intends when the rear tires lose grip and come around the car causing it to spin if not corrected.
- Understeering occurs when your tires lose traction. Although the driver intends to turn, the vehicle continues forward.

Making Right Hand Turns

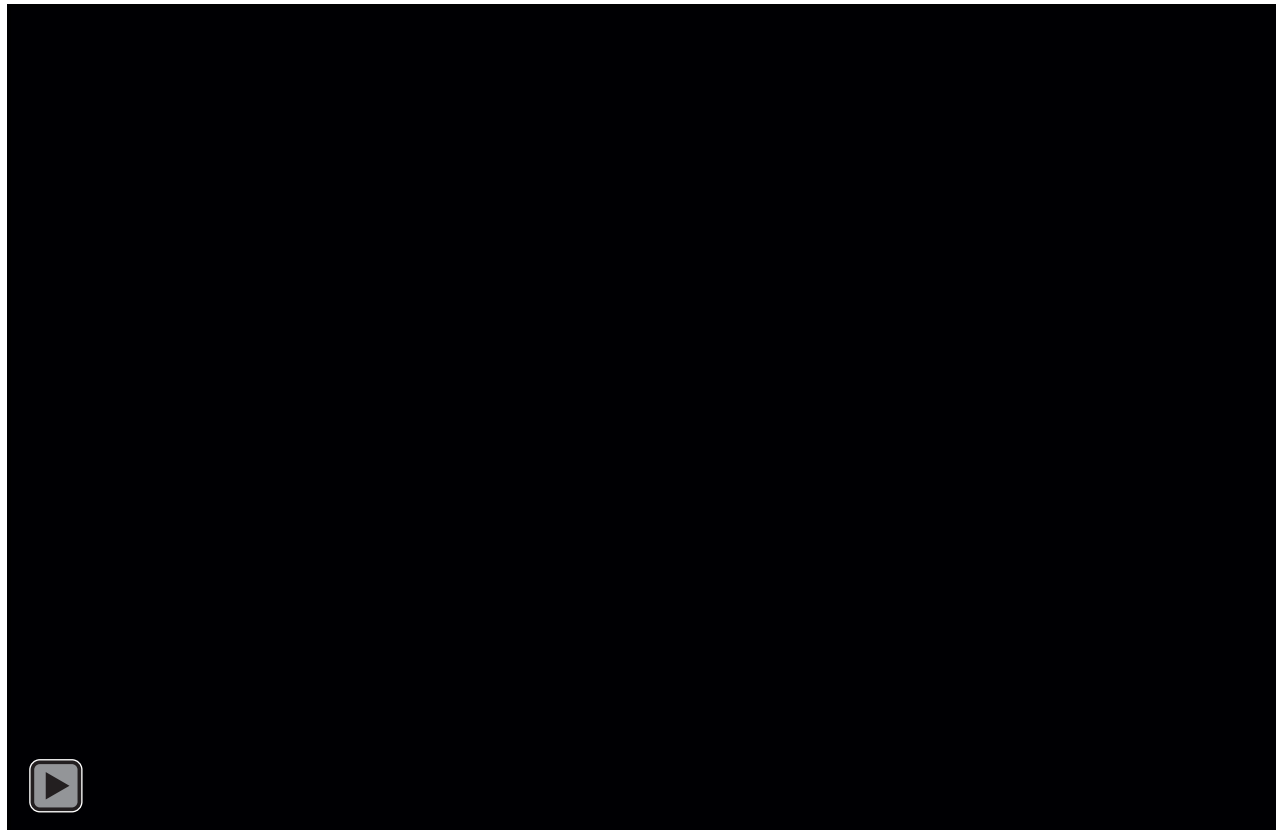
- Signal 100 – 150 feet before the turn without causing confusion of which turn you are going to make
- Slow down BEFORE the turn. 10-15 mph should be sufficient for a 90 degree turn
- Did you check your mirrors? What are you looking for? (Left, right, rearview)
- Enter Lane position 3 (right side of lane)
- Right before you approach the turn – Look again for pedestrians, hazards, or stopped traffic

Making Right Hand Turns

- Look where you want the vehicle to go
- Make sure the front wheel follows the turn of the curb and clears before you steer all the way right
- Recovery – Start straightening the wheel about $\frac{1}{2}$ way through the turn
- Slowly accelerate midway through the turn to get through it.
- Get back up to speed when the vehicle has completed the turn

Right Turn Example

This short clip will illustrate how to make a right turn



<https://dmv.ny.gov/about-dmv/chapter-5-intersections-and-turns>

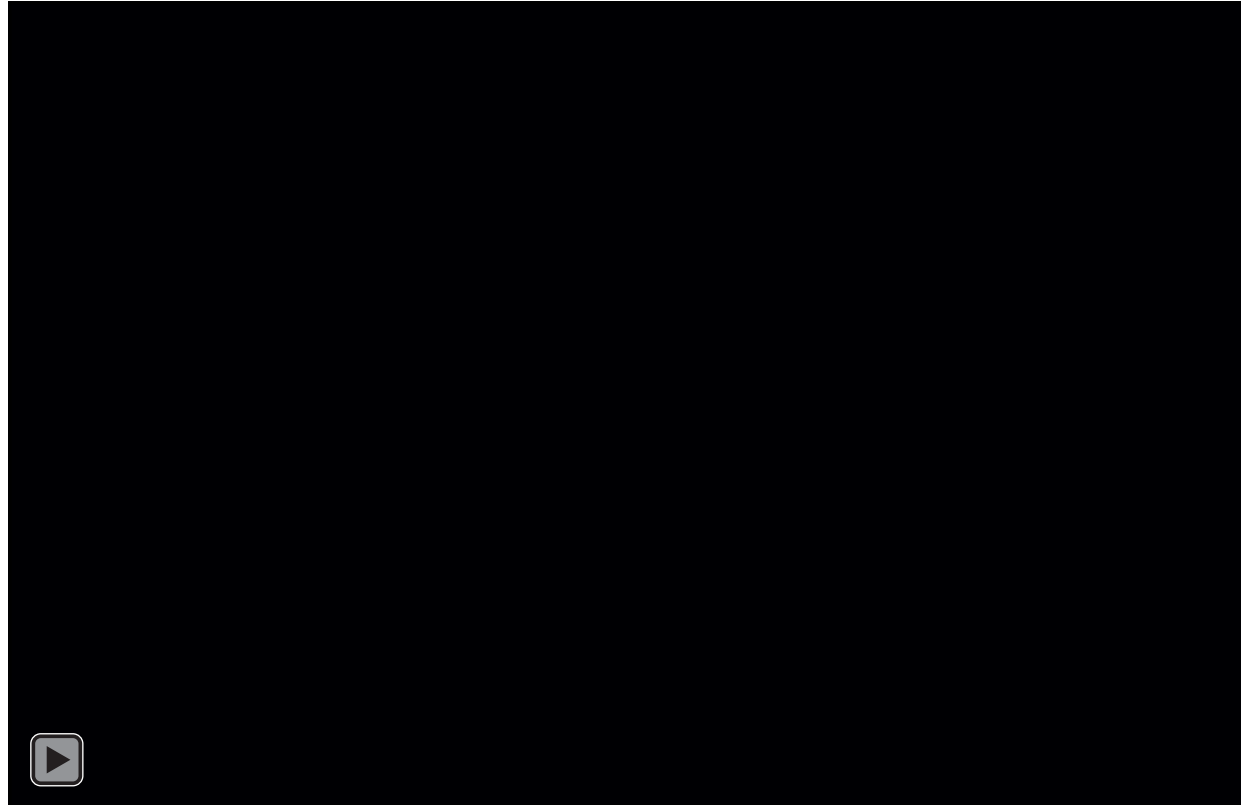
Making Left Hand Turns

- Signal 100 – 150 feet before the turn without causing confusion of which turn you are going to make
- Slow down BEFORE the turn. 10-15 mph should be sufficient for a 90-degree turn
- Right before you approach the turn – Look again for pedestrians, hazards, or stopped traffic
- Did you check your mirrors? What are you looking for? (Left, right, rearview)
- Enter Lane position 2

Making Left Hand Turns

- Look where you want the vehicle to go
- Make sure the front wheel follows the turn
- Recovery – Start straightening the wheel about $\frac{1}{2}$ way through the turn
- Slowly accelerate midway through the turn to get through it.
- Get back up to speed when the vehicle has completed the turn

Left Hand Turn Example (One Way to Two Way Road)



<https://dmv.ny.gov/about-dmv/chapter-5-intersections-and-turns>

Backing Left and Right

- Before you back up
 - Check for traffic, pedestrians, parked vehicles, telephone poles, or any other object that is in your path of travel
 - You need to look all around you, just like an owl!
- Keep both hands on the wheel when backing up and turning. Physically turn and look in the direction you want to back the vehicle to.
- The vehicle will move in the same direction the top of the wheel is turned.
- Back slowly. Make quick glances to the front and sides of the car to be sure your path is clear
- Be aware that the front of the vehicle will swing out wide in opposite direction from the rear of the vehicle.

Checking for Understanding Activity

- When do you signal for a turn in residential areas? Is it different when driving in country?
- What should your speed be for a sharp 90 degree turn?
- Explain understeering and oversteering
- What is recovery when associated with turning?
- What steps would you take in order to back to the left?

Turning Around: General Tips

- Be smart – select the SAFEST way to turn around
- Usually, the safest method is to drive around the block or pull into parking lot
- Backing into a driveway and then driving forward out of the driveway is typically safer than backing out. Why do you think this is?
- SMOG and “roll slow, steer fast” as you execute control and visibility when backing is necessary.

Don't Attempt to Turn Around

- Near the crest of a hill, curve, or any location where visibility from oncoming or vehicles behind you is an issue
- On an entrance/exit ramp
- On a highway or fast-moving road
- Near a busy intersection or in busy traffic
- In a school zone
- Where a sign says that turning around is prohibited (No U Turn)

U-Turns

- Signal right in advance of your turn, check your mirrors, begin braking, pull into lane position 3 and STOP
- Engage the left signal. Look in front of you (oncoming traffic), behind you (traffic approaching behind you), to the left of you (Pedestrians other obstructions), to the right of you (Pedestrians)
- Look to the Left and front of you one more time
- If all clear, turn your wheel all the way to the left as it will go. Gradually move the vehicle towards the other side of the road

U-Turns

- Keep vehicle moving smooth and steady – ROLL SLOW, STEER FAST
- Accelerate once you have determined that you can clear the opposite curb
- Keep moving through the turn
- Make sure your turn signal is turned off!

2-Point Turn

Allows you to change direction using a driveway or cross street. Point refers to the place the vehicle stops to turn the wheel for both 2-Point and 3-Point turns.

- Put on your turn signal and slow down as you get ready to pull in the driveway or street
- Drive past the entrance (e.g. driveway or road) you wish to back into
- Ensure there are no pedestrians, bicyclists, vehicles, or other obstacles in your path of travel
- Put the vehicle into reverse and turn in the direction you want to back your car into

2-Point Turn

- Once in the driveway, turn your wheel straight and stop when your vehicle is completely out the road
- Turn your signal on again to the direction you wish to turn.
- Look for pedestrians, bicyclists, vehicles, or other obstacles in your path of travel
- When clear, make the left or right turn on to the roadway

3-Point Turn (K-Turn, Broken U-Turn)

1. Signal with your right turn signal, then pull into lane position 3 (right side of road) and STOP.
2. Signal with your left turn signal
3. Check for pedestrians, bicyclists, vehicles, or other obstacles in your path of travel
4. Turn left and go across the road (ROLL SLOW, STEER FAST) and stop when you approach the left curb
5. Look again for traffic and obstacles in your path of travel. Put your car in reverse and backup to the right to the opposite curb. STOP.
6. Look one final time for obstacles in your path of travel. Place the car in Drive and pull away from the curb proceeding in your new direction.

Remember: Slow vehicle – fast hands; try to time the speed of the turn so that you aren't grinding the tires.

Check for Understanding – Activity 3

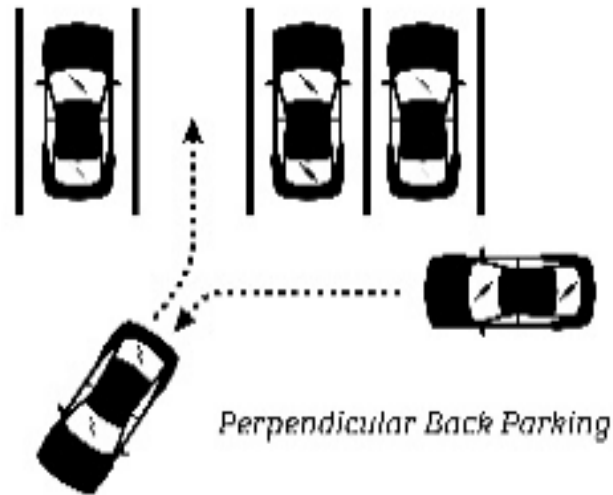
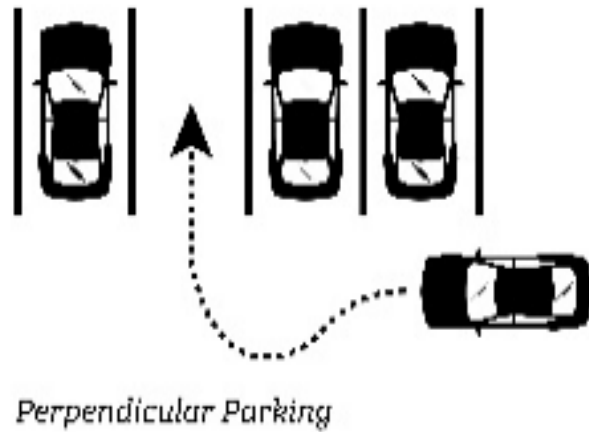
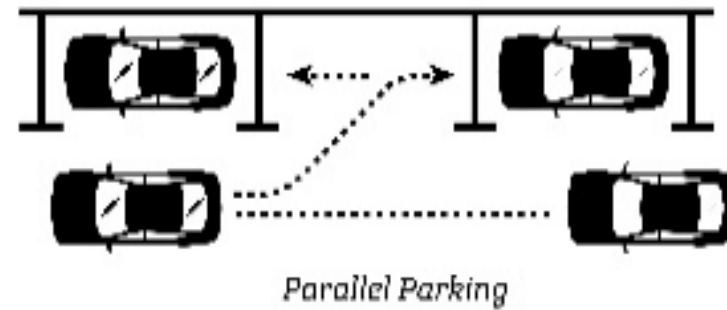
- What is the first step in executing a U-Turn?
- What does a “Point” refer to when discussing 2 and 3 point turns?
- What are some other names for a 3-Point turn?
- What is the steering sequence for a 3-Point turn, starting from after you have pulled over to the side of the road?

Parallel Parking Tips

- Signal your intentions first to move to the curb then slow and brake
- Select a space that is large enough for your vehicle to back into
- Pull up beside the vehicle you wish to park behind to the point where your side mirror is next to the other vehicles' side mirrors
- Look for obstacles in your path. Back the vehicle slowly and begin to turn your steering wheel completely to the right swinging the front of the car out.
- When your side mirror approaches the right bumper of the other vehicle, turn your wheel to the left to swing the front of the vehicle in towards the curb.
- Continue backing into the space until the car is completely in
- Shift car into Drive. Pull ahead to straighten the car.

See <https://dmv.ny.gov/about-dmv/chapter-7-parallel-parking> for additional instructions

Perpendicular and Angle Parking



Perpendicular Parking - Entering

Pulling in at a right angle to the curb, between two vehicles:

- Locate your space
- SMOG
- Move as far away as possible from the space you are planning to enter
- Turn into the space when the passenger mirror is in line with the white line of the parking space
- Steer into the space, watching for the turning radius
- Straighten wheels when you are about halfway into the space
- Make sure you don't pull too far forward (the curb/perpendicular line will be just below your side mirrors)

Perpendicular Parking - Exiting

- Place the vehicle gear into reverse, making sure the wheels are straight
- Look 360 before vehicle moves, like an owl
- Back slowly as necessary, looking all around the entire time
- Keep straight until your front tire is lined up with the back tires of the other vehicle
- Steer slowly in the correct direction to finish the back out
- Remember to look back in the direction that you want the vehicle to go and steer in that direction
- Watch to insure that bumpers don't "kiss"

Angle Parking

Pulling in at a diagonal angle to the curb, between two vehicles

- Locate your space
- SMOG
- Move as far out away from the selected space as possible
- Look to see the very end of the space before turning in
- Aim for the center as necessary
- Stop without going too far forward as you rewind the wheel (the curb edge will appear just below your side mirror)

Angle Parking - Leaving

- Place your vehicle in Reverse and straighten the wheels
- Look 360 degrees BEFORE you move your car
- Back slowly, continuing to look all around your vehicle
- Keep straight until your bumper clears the other parked vehicles
- Steer in the correct direction to finish
 - Top of wheel steers to the right, vehicle moves to the right
 - Top of wheel steers to the left, vehicle moves to the left

Parking on a Hill

Make sure you turn your wheels in the correct direction to ensure that the vehicle will not roll into traffic

- With a curb
 - Facing downhill, turn front wheels towards the curb, using it as a block
 - Facing uphill, turn the front wheels way from the curb, using it as a block should the car go in reverse
- With no curb
 - Facing uphill or downhill, turn your tires to the right so your vehicle will roll off the road and not into traffic
- Always make sure your vehicle is in park if it is an automatic (first gear if a manual transmission). Make sure you engage the parking/emergency brake for extra safety.

Review

1. When performing a parking maneuver, it is important that the vehicle rolls slowly, but your hands steer _____

Quickly

2. What is a checkpoint or reference point? Name one checkpoint regarding parallel parking

A guide to a successful set up for parking. Line up mirror to mirror to ensure the vehicle starts in a parallel position to the vehicle being parked behind.

3. When parallel parking, are signals required and if so, what/when would you signal?

Yes. Signal to slow before stopping. Signal right to indicate turning back with back up lights on. Signal to leave the space and re-enter traffic.

4. List two checkpoints when executing perpendicular parking?

Center your vehicle in the parking lot lane; begin turning when you can see the end of the parking space you are turning into, don't oversteer.

Review

- When parking downhill with a curb, which way do you turn your wheels and what precautions should you take when securing your vehicle?
Point towards the curb. Set the parking brake.

References

- New York State Department of Motor Vehicles. New York State Driver's Manual.