

# Lesson 5

## OBJECTIVES for LESSON Five

- A major objective of this lesson is to prepare the teen to safely approach and travel through intersections.
- Each year over 30 per cent of all crashes occur at intersections, and at least a third of those are rear-end crashes. This lesson places emphasis on approaching intersections and rear zone control.
- The teen should demonstrate an awareness of how to control space while stopping in a traffic situation. To demonstrate awareness, one needs to see the closed POT and respond to it in a manner that is consistent with our space management principles.
- Most often the stop in traffic will occur at intersections. Therefore, each red traffic light, or each stop sign that is approached gives an opportunity to demonstrate space control. Many fatal highway rear-end crashes can be avoided with the timely detection of a rear zone condition and effective use of communications.

## THE DRIVING SETTING

Use residential roadways, rural two and four lanes, urban areas, and State highways with two to six lanes of traffic. As always, begin in the least complex roadway and traffic situations. As performance becomes consistently acceptable, increase the complexity of roadways.

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## Key Behavioral Pattern Applications

### Effective sending of communication

Communication must take place early enough for others to receive and act upon the signals sent.

### Responding to communication

When you effectively receive communications from others your actions should follow the principles of Zone Control.

### Getting commitment from others

Anytime you are attempting to communicate with others you must not assume that your intentions are known until you get a commitment. To get a commitment is to receive a message from others that they acknowledge you.

### Being courteous

So much stress creeps into our lives unnecessarily. One way to minimize stress is to eliminate some of the competitive situations that occur while driving. If you set your goal to strive for at least one or two situations each day when you can be courteous to others, it can put you into a win-win situation. You help someone, which in turn gives you a good feeling, as compared to trying to compete with someone and losing. Spread some goodwill; be courteous!

### See intersections in target area as zone change

Manage the LOS-POT blockages before entering the intersection. Control the rear zone on approach. Search left, front, right zones (45 degree angle while approaching, 90 degree angle when stopped) before entering.

### Time arrival into open zone

Reduce speed to give the light time to change to green.

### Locate and apply PONR before Intersection

The Point-Of-No-Return (PONR) is the last opportunity you have to stop the car without entering the intersection. The car will be 2 seconds away from the intersection.

### Apply appropriate stop: Staggered, Legal, Safety

- **Staggered Stop** is stopping or preparing to stop, so that you can see the stop line to the front of your car. This gives turning trucks and buses clearance from your car.
- **Legal Stop**, front of car is even with the stop line.
- **Safety Stop**, front of car is at curb line to best see traffic.

### Stopped with vehicle in front - See Tires

With a stopped car in front, stop where you can see its rear tires touching the pavement. This will give you an escape path, if needed, to get around it.

### Awareness and Control of rear zone

- **Open Rear Zone** No one closer than two seconds, and at least 12 seconds visual sight line.
- **Closed Rear Zone** You do not have an open zone.
- **Unstable Rear Zone** An open or closed zone that has the potential to become worse.

### See "Sand Barrels" to rear

The more stopped cars to your rear, the less risk of injury from a rear impact. The stopped rear vehicles act as sand barrels (like the yellow ones seen at some highway exits) to absorb the force of impact.

### Use Mirrors

As your foot goes onto the brake pedal, your eyes should go to the rear view mirror. Check the mirrors after seeing a zone change and before and after stopping, turning, lane changing.

### Check mirror's blind spots

Even with side view mirrors there is a blind area where another vehicle alongside you may not be detected. Three ways to compensate for the mirror's blind areas are by: Convex Mirror checks, Over-the-shoulder checks, Move the head forward while checking the outside mirrors.

### Recognize rear zone conditions

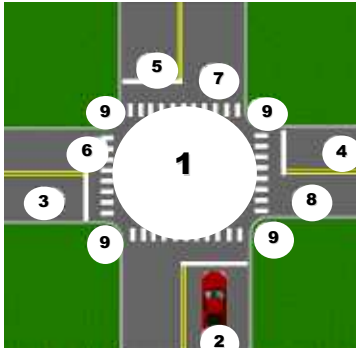
- **Open Rear Zone** is with no one closer than two seconds, and at least 12 seconds visual sight line.
- **Closed Rear Zone**, you do not have an open zone.
- **Unstable Rear Zone** is an open or closed zone that has the potential to become worse.

### Control of rear zone

When you recognize which type of situation you have to the rear — open, closed, or unstable — and you detect the condition at least 12 seconds before you need to stop, you will have many options to control the rear zone.

Rating: √ = Okay, X = More Practice Needed

**Help Teens Search Intersections**



1. Search your immediate POT in the intersection. Look for traffic lights, other vehicles, LOS blockages, pedestrians.
2. Search your rear zone immediately after seeing the intersection, before braking, and while stopped.
3. Search for traffic approaching from the left zone.
4. Search for traffic approaching from the right zone.
5. Search for oncoming traffic in the front zone.
6. Before making a left turn, search for an open path to enter.
7. When going straight, search your intended POT.
8. Before making a right turn, search for an open path to enter.
9. Search all corners for pedestrians.

**NOTES**

**16: Communications**

**1. Effective Use of:**

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- Signal Lights
  - Headlights
  - Brake Lights
  - Horn
  - Lane Position
  - Speed Control
  - Hand Signals

**2. Time Communications**

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- Send Messages
  - Receive Messages

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3. Respond To Communications
  4. Get Commitment
  5. Courteous To Others

**17: Approach Intersection**

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1. See Inter. In Target Area
  2. Check The Rear Zone
  3. Select Best Lane/Position
  4. Search Left, Front, Right
  5. Speed Control For LOS-POTs
  6. Point-Of-No-Return

**7. Stopping: No Car In Front**

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- Staggered Stop
  - Legal Stop
  - Safety Stop

**8. Stopping: Car In Front**

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- See Rear Tires
  - Delay Moving 2 Seconds

**9. Stopped In Traffic**

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- Unstable Rear Zone
  - Identify "Sand Barrels"
  - Communicate
  - Know Escape Path

**18: Rear Zone Control**

**1. Use Of Mirrors**

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- After Seeing Zone Change
  - Before & After Braking
  - Stopped In Traffic
  - Before & After Turns
  - Before & After Lane Change
  - Use Mirrors Effectively

**2. Check Blind Areas**

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- Convex-Mirror Check
  - Head Movement Check

**3. Rear Zone LOS-POT Change**

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- Fast-Closing Vehicles
  - LOS Restrictions

**• Tailgater Types**

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- Charger
  - One Pacer
  - Habitual

**4. Awareness Of Rear Condition**

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- Open • Closed • Unstable
  - Take Action/Control Rear
  - Effective Speed/Control Rear

**19: Stopping In Traffic**

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1. See Closed POT - 12 Seconds
  2. Check Rear Zone
  3. Time Arrival Open Zone
  4. Communicate to Rear
  5. Braking Without Delay
  6. Control the Rear Zone
  7. Gradual Approach to Stop
  8. Make Smooth Stop
  9. Monitor Rear

**10. A Car In Front**

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- Stop To See Tires
  - Delay Start-Up 2-Sec.

**Key Behavioral Patterns**

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- Send-Receive Communications
  - Gets commitment, is courteous
  - FINDS Intersection in Target A
  - CONTROLS Rear zone
  - Search Left, Front, Right zones
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- Locates & Applies PONR
  - Staggered, Legal, Safety stops
  - Stops to See Tires
  - See "Sand Barrels" to rear
  - Times Arrival into open zone

# Lesson 5: Student-Centered In-Car Activities

**Guide 16 Communications:** Ask the teen to demonstrate one technique at a time, from those that are listed on the Guide, as situations occur. Remember, the major purpose of communication is to be mentally ahead of the situation so that surprise actions from others are minimized. Consciously discuss positive ways to interact with other drivers. Teach how to be courteous to others.

**Common Error:** The teen will be preoccupied maintaining a safe travel path, which may prevent her from seeing and responding to communications from others. You can help her develop consistency in reading and sending communications. Verbalize to her the actions you see other drivers taking, and cue her for correct communication actions. For example, "tap your brake lights to communicate to the driver in back."

## 16: Communications

**Activity 1:** Have the student use the signal light at least 5 seconds before making a lane change or a turn. Have her count the number of seconds after the signal is actuated and before the change in speed or direction is made to develop her value for having 5 seconds of time to communicate.

**Activity 2:** Have the student practice flashing her headlights. Imagining that there are approaching vehicles and that she is alerting them to an upcoming danger, such as a tree that has fallen into the roadway around the curve.

**Activity 3:** Have the student practice tapping the brake pedal as she approaches a stop sign. Ask her when a driver would use this technique. (closed or unstable rear zone)

**Activity 4:** Have the student demonstrate use of the horn in a timely manner when a potentially dangerous situation arises. There are two reasons for using the horn, one is to warn others of an imminent crash, the other is to get one's attention. To help prevent the crash, a long blast on the horn would be needed. To get someone's attention, like a car with a distracted driver that has not moved for four or five seconds after the traffic signal turned green, you would give two quick light taps on the horn, which sounds less abrasive and more friendly.

**Activity 5:** Ask the student to state what lane position other vehicles are in as you encounter them. When the vehicle is not in an acceptable position according to the Zone Control Principles, have the teen make note of it and to state what actions she thinks the driver is likely to take. This is an important skill that can help the teen become aware of impending head-on crashes at a time when the crash can be avoided.

**Activity 6:** Have the student evaluate the speed changes that other drivers make and state what actions they believe the driver will take.

**Activity 7:** Have the student evaluate the speed changes and lane positioning changes that other drivers make and to state what actions they believe the driver will take. For example a driver ahead that was traveling at 45 mph reduces speed to 25 mph and moves from LP1 into LP2. It most likely would mean the driver is looking to make a left turn. This communication of speed and lane position changes are more easily seen than the driver putting a signal light on. Looking for where the turn might take place will communicate the need to stop and wait, or that the driver will be able to complete the turn.

## 16: Communications

**Activity 8:** On a lightly travelled road, have the student practice using hand signals to communicate.

**Activity 9:** Discuss with the student why sending messages in a timely manner is important. On a quiet stretch of road bring together all the various ways of communicating. Make up scenarios for student practice. For example, as you approach a stop sign you might say "there is a vehicle tailgating you, how will you communicate to him?" "An imaginary car is trying to pull out up ahead, show me how you would communicate with it." By using imagination, you can give the student mass practice in the behaviors of communicating in a short period of time. **Note:** Watch for the student's unconscious behaviors as you get her distracted with these activities.

**Activity 10:** Discuss with the student what things will make receiving timely communication difficult. Distractions such as conversation, playing with the radio, or sleep deprivation may decrease communication effectiveness.

**Activity 11:** Ask the student to tell you when she has received commitment from other road users.

**Activity 12:** Have the student demonstrate being courteous to another driver. Make a note of the student's courteous behavior and give her positive feedback. Ask her to tell you when or how she was courteous and again reinforce those courteous actions. Sometimes being courteous means merely to slow down slightly to open up a larger gap for an oncoming vehicle to make a left turn. Being courteous means to maintain an attitude of consideration for the other driver.

**Guide 17 Approach Intersection:** The following are specific questions to ask the teen before approaching the intersection to help increase her awareness of intersection problems and increase the control of space management. **ASK:** •"State when you see an intersection." •"Describe the LOS-POT condition." •"Which zones are closed and what should you do about it?" •"Explain what is the best lane position." •"Show how to make an effective search of the intersection." •"State the condition of the rear zone." **If Stop is required:** •"Demonstrate how to make a smooth stop." •"Explain gains for stop location with car in front."

**Common Error:** The teen will have a tendency to fixate straight ahead when entering intersections. You will need to remind her to search the left, front, and right zones of an intersection to detect an LOS-POT blockage and to make appropriate adjustments in speed and position. The point-of-no-return will also need to be practiced.

## 17: Approach Intersection

**Activity 1:** When the intersection is seen in the 15-second range, have the student state the condition of the rear zone—open, closed, unstable. And, guide the action she takes.

**Activity 2:** While 10 seconds away have the student explain what is the best lane position for going through the intersection.

**Activity 3:** Have the student search the left, front and right zones and state which zone contains the worst LOS-POT. When moving through the intersection without a stop, have her search the "worst" zone last before reaching the PONR.

**Activity 4:** Have the student state where the PONR is while approaching the intersection (two seconds away).

# Student-Centered In-Car Activities: Lesson 5

## 17: Approach Intersection

**Activity 5:** When on the inside lane of a multi-lane road and a stop is required at a stop sign or signal light controlled intersection, have the teen make a staggered stop (stopping at a point where the stop line is just visible to the front of the hood) to develop it into habit. Ask her to state why a staggered stop is necessary. (To give clearance for large turning vehicles and to avoid drivers that are cutting the corner tight to beat the light.)

**Activity 6:** Have the student use reference points to make a legal stop at the stop line. The stop line will not be long enough for the student to see it near the passenger side mirror, so she will need to make an abstract extension of the line.

**Activity 7:** When stopped at a stop sign controlled intersection, before entering have the student make a safety stop (front of car even with the curb line). This will provide an adequate view to search deep into the intersection to the left and right, and also to search the front zone.

**Activity 8:** When stopping with a car in front, stop where the tires touching the pavement are still visible. Ask the student what the advantages are. (escape path, less force of impact, etc.).

**Activity 9:** After the front vehicle moves, have the student count one-thousand one, one-thousand two before proceeding. This prevents crashes due to false start-ups.

**Guide 18 Rear Zone Control:** Have the teen practice use of mirrors and blind spot checks. Use the inside and outside mirrors during those moments when the rear should be checked. Ask the teen: "What conditions exist to the rear?" "What type of tailgater do you have?" "Demonstrate the best actions to take for control."

**Common Error:** The teen will have a tendency to move her arms and hands when the head is turned to look over the shoulder. Be ready to hold the steering wheel to prevent movement. Also, she will stare too long in the mirrors when learning how to use them.

## 18: Rear Zone Control

**Activity 1:** Have the student identify whether the rear zone is open, closed or unstable. Ask her what actions are best for reducing the risk from the rear zone condition.

**Activity 2:** Anticipate when the student will be braking. Check your instructor mirror, then the student eye check mirror to determine if she has moved her eyes to the rearview mirror.

**Activity 3:** When stopped in a traffic flow, require the student to tell you when she has two or more cars ("sand barrels") in back. Until that time she should monitor and verbalize the condition of the rear zone.

**Activity 4:** Before and after making a turn or a lane change, check the student's eye movement to see if she checks the rear view mirror.

**Activity 5:** Monitor the student's blind spot check and make certain that she does not turn the wheel when she moves her head.

**Activity 6:** Use an alternate method of checking the mirror's blind spot. Have the student move her head forward 8-10 inches while checking the outside mirrors. As the head moves forward the angle of the mirror's reflection increases, allowing a view that would not be seen without moving the head forward.

## 18: Rear Zone Control

**Activity 7:** As you approach an intersection, check for rear traffic. If there is no traffic, tell the student as she checks the rear view mirror, "imagine that there is an unstable rear zone caused by a fast approaching vehicle. Take the actions you should to control the rear zone."

**Activity 8:** Have the student tell you what type of tailgater exists behind her when she is being tailgated.

**Activity 9:** If there is no tailgater, you can describe an imaginary tailgater. For example, "there is a tailgater that is not paying attention and seems distracted. What type tailgater do you have?" (Habitual) And, "what will you do about it?"

**Guide 19 Stopping In Traffic:** Each time the teen approaches a closed front zone, you have an opportunity to observe her awareness of how to manage space. To effectively use this Guide, you should be in an area where stops are likely to occur. When you see a closed POT, glance at this Guide to determine which two or three behavioral patterns you will observe first. Watch the teen's performance to see if the proper action is taken. When you do observe successful performance, praise her. Look ahead for another closed POT and select other behavioral patterns to observe.

**Common Error:** Braking response to a closed front zone may not occur as early as it could, or should. Cue the teen when you see a closed front zone to get an earlier braking action. Making smooth stops requires consistent awareness and slight release of braking pressure during the last two seconds of the stop.

## 19: Stopping In Traffic

**Activity 1:** Have the student identify the closed front zone, state the condition of the rear zone and describe her strategy to time the approach to the traffic light for an open zone.

**Activity 2:** Have the student monitor and describe the rear zone condition and demonstrate proper action for open, closed or unstable rear zone conditions.

**Activity 3:** Watch the student to see if she responds in a timely manner to a closed front zone by getting off the gas and beginning to brake. When she arrives in an open zone, due to her early speed adjustment, give her positive feedback.

**Activity 4:** Observe the student tapping the brake pedal to alert the driver behind with the brake lights.

**Activity 5:** Watch for a front zone change. Once a front zone change is detected, monitor the student. As soon as the student checks the rearview mirror, count to yourself "one one-thousand, two one-thousand etc. Stop counting when you reach the zone that you identified as closed to discover how early she is adjusting to a closed front zone. Coach as needed.

**Activity 6:** Monitor how the student uses speed control as she approaches the stop location. Take into account the grade of the road, weather conditions, etc.. Ask her, "how is your traction envelope" as she approaches the intersection. She can report to you her analysis of the available traction and the reason(s) why she selected a particular speed.

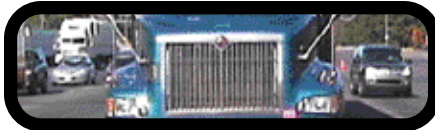
**Activity 7:** Imagine you had your eyes closed. Would you be able to detect a stop? If the answer is "yes" coach the student for smooth stop improvement at the next opportunity.

# Using the Rearview Mirror

## Take that Stick of Dynamite out of your trunk!

### Why Check Mirrors?

If someone placed a stick of dynamite that could explode at any moment in the trunk of your car, would you want to know about it? A vehicle plowing into you from behind, especially a large truck, can have the potential energy to do more damage to you and your family members than that stick of dynamite. Suppose you see a problem ahead of you that you need to brake for. You may not be able to stop your car effectively if you cannot prevent the vehicle to your rear from pushing you into the problem! You cannot control your front zone if you do not control your rear zone. In order to control your rear zone you need to have time and information. Checking your mirrors can give you the information. And the sooner you check them, the more time you will have to solve a problem.



### Which Scene Do You Want?

You are approaching a construction site on the interstate highway. You begin braking. When would you like to know that there is an 18-wheeler closing your rear zone? The top photo would give you more time and space to get the driver to slow down!

### Three Rear Zone Conditions

The rear zone is either open, closed or unstable.

- When a vehicle is at least 2 seconds away from your rear bumper, and not gaining on you, your rear zone is **open**.
- When a vehicle is closer than 2 seconds, your rear zone is **closed**.
- When a vehicle is closing in on you, your rear zone is **unstable**, and can become a very dangerous condition.

It is easy to get into the habit of evaluating your rear zone and taking the best actions.

### Responding to Zone Conditions

**Open Rear Zone:** You want to keep monitoring your rear zone to detect any change in movement to your rear. You can usually do this by using your peripheral vision while you are searching your front and right-front zones. When you see a zone change affecting any of your three front zones, you will need to direct your central vision into the mirror to evaluate the condition to the rear.

**Closed or Unstable Rear Zone:** When the rear zone is closed, especially when it is unstable, you need to **pay more attention to your front zone** to gain as much communication time as possible, alerting the driver in back of an impending braking action. Take note of how the driver to your rear responds to minor braking actions as they occur. This could tip you off to situations when there may be a drowsy, distracted or intoxicated driver as a threat to you, before you run out of options for gaining control.

### When You are Most at Risk

You are at the greatest risk of having someone crash into you when you're stopped at an intersection. The higher the speed limit the more potential for damage. Stopping for work zones, toll booths, and for other traffic delays on limited access highways leads to the most fatal crashes. Your only defense begins by knowing what is happening to your rear zone as soon as possible.

# 5

## Lesson

# Parent-Teen Practice Guides

Student Name \_\_\_\_\_

Parent/Mentor Name \_\_\_\_\_

Rating: ✓ = Okay, X = More Practice Needed

			<b>1. Effective Sending and Responding to Communications</b>
			<b>2. Is Courteous to others</b>
			<b>3. See Intersection in Target Area as Zone Change</b>
			<b>4. Time Arrival into Open Zone</b>
			<b>5. Locate and apply PONR (Point Of No Return) before intersection</b>
			<b>6. Demonstrate Staggered, Legal, Safety Stops</b>
			<b>7. Stop with a vehicle in front to See its Rear Tires touching road</b>
			<b>8. Classify Rear Zone as: Open, Closed, or Unstable</b>
			<b>9. When foot goes on the Brake, eyes go to Rear View Mirror</b>
			<b>10. Check mirror's Blind Spot, over the shoulder, or move head forward</b>

# 5

**Driving Environment:** Use residential roadways, rural two and four lanes, urban areas, and State highways with two to six lanes of traffic. As always, begin in the least complex roadway and traffic situations. As performance becomes consistently acceptable, increase the complexity of roadways.

## NOTES

1st Date \_\_\_\_\_ 2nd Date \_\_\_\_\_ 3rd Date \_\_\_\_\_

Signed \_\_\_\_\_ Signed \_\_\_\_\_ Signed \_\_\_\_\_