

CHAPTER 8
DRIVING FUNDAMENTALS

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LESSON TOPIC:

DRIVING FUNDAMENTALS

OBJECTIVES:

- o To give bus driver candidates an overview of their responsibilities while driving a school bus.
- o To give drivers the correct procedures for safely and efficiently driving a school bus.
- o To evaluate the drivers' ability to handle a school bus.
- o To evaluate the drivers' knowledge of school bus operations.
- o To give drivers the needed practice to enable them to operate a school bus safely and efficiently in accordance with applicable laws and regulations.

PERFORMANCE STANDARDS:

Drivers will demonstrate their ability to apply all the knowledge and skills gained during the instructional phase of this unit by successfully completing the over-the-road test with a minimum proficiency of 80% and scoring 80% or more on the written exam.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE ATTENTION TO DETAIL. NEGLECT OF LITTLE THINGS CAUSES BIGGER PROBLEMS.</p>	<ul style="list-style-type: none"> 7. parking the bus; 8. use of mirrors; 9. danger zone; 10. backing the bus; 11. crossing railroads; 12. maneuvering the bus; and <ul style="list-style-type: none"> a. enter flow of traffic b. adjusting speed of bus c. lane use and position of roadway d. being overtaken and passed e. overtaking and passing f. following a bus 13. speed and traffic laws. <ul style="list-style-type: none"> a. crossing an intersection b. turning on red c. traffic control devices and signs <p><u>GETTING READY TO DRIVE</u></p> <p>The first objective we will discuss is getting ready to drive. There are several tasks which a driver must complete in order to get ready to drive a school bus. To many of you, these might seem very simple and should not be given any attention. After all, doesn't everybody know how to start a motor vehicle?</p> <p>We will discuss all the little things which must be considered in order to properly drive a school bus. If you take care of the little things, the big things will take care of themselves.</p>

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<p>FOR #4, EXPLAIN THAT SEAT IS A PEDESTAL-TYPE SEAT AND THAT THE DRIVER CAN BE KNOCKED OR THROWN OUT OF THIS SEAT VERY EASILY. DRIVER OUT OF SEAT – OUT OF CONTROL.</p> <p>FOR #5, ALSO MENTION AUTOMATIC SHIFTING.</p> <p>POINT OUT THE GENERAL SIMILARITIES BETWEEN DRIVING A CAR AND A SCHOOL BUS. PROVIDE OR ASK FOR SPECIFIC EXAMPLES FROM CLASS. CONFIRM OR CORRECT THE EXAMPLES.</p> <p>ALSO POINT OUT DIFFERENCES BETWEEN DRIVING A CAR AND A SCHOOL BUS. PROVIDE, AS WELL AS ASK FOR, EXAMPLES.</p>	<p>Before a driver is ready to drive a school bus, you, the Driver Training Instructor, must see that the following tasks have been accomplished:</p> <ol style="list-style-type: none"> 1. A good bus driver positions himself in control. The driver must be in a position to be able to reach and operate the controls in comfort and see all the way around the bus. A driver shall use his/her right foot only when driving a bus equipped with an automatic transmission. 2. The seat must be adjusted so that the driver’s feet can operate the brake pedal, clutch, accelerator and light dimmer switch easily. 3. All mirrors must be adjusted for optimum vision of traffic behind the bus, to both sides and across the front of the bus. 4. Driver must fasten and adjust seat belt. 5. If bus is unfamiliar, go through shift pattern with clutch depressed if the bus has a manual transmission. <p>When driving a school bus, drivers will be handling a vehicle that is much larger than the vehicle many of them are accustomed to driving.</p> <p>What are some of the similarities between a car and a school bus? (ANSWER: DRIVER MUST OBEY RULES OF ROAD, HAS SAME MECHANICAL PARTS – MOTOR, BRAKES, ETC.) What are some of</p>

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<p>POINT OUT EACH ITEM AND ITS GENERAL LOCATION.</p>	<p>safe, efficient and economical operation are located in the driver's area of the school bus. It is very important that the driver fully understand the function of each of the controls and how to read each of them.</p> <p>Located on the instrument panel in front of the driver, are lights and gauges that indicate the status of various vehicle functions. To the driver's left are switches which control the lights and fans. The service door control is located to the right or left of the driver. The parking brake and transmission shift levers are located to the right of the driver. This arrangement is fairly standard for all school buses currently used in Kentucky.</p> <p>We are now going to discuss each of these controls and determine how each one functions to give us the basic engine status. We will also interpret the readings of the lights and gauges. Kentucky school buses will have, as a minimum, these instruments in the chassis instrument panel:</p> <ol style="list-style-type: none"> 1. speedometer, showing miles per hour; 2. odometer, showing accrued miles; 3. volt meter; 4. oil pressure gauges; 5. water temperature gauges; 6. fuel gauge; 7. upper beam headlamp indicator; 8. turn signal indicator lights; 9. air gauge;

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<p>EMPHASIS THAT OIL PRESSURE GAUGE DOES NOT INDICATE THE AMOUNT OF OIL NEEDED FOR PROPER ENGINE OPERATION.</p> <p>PRESENT SLIDE OR OVERHEAD SHOWING OIL PRESSURE GAUGE WITH PROPER AND IMPROPER READING.</p> <p>EMPHASIS THAT RUNNING ENGINE HOT WILL CAUSE SEVERE DAMAGE AND TO NEVER POUR COLD WATER INTO A HOT ENGINE.</p> <p>PRESENT SLIDE OR OVERHEAD SHOWING WATER TEMPERATURE GAUGE WITH PROPER AND IMPROPER READING.</p> <p>PRESENT SLIDE OR OVERHEAD SHOWING VOLT METER WITH PROPER AND IMPROPER READING.</p> <p>EMPHASIS IF INSTRUMENTS ARE NOT REGISTERING WITHIN AN ACCEPTED RANGE OR CANNOT BE BROUGHT INTO AN ACCEPTABLE RANGE, DON'T DRIVE. CONTACT THE MECHANIC AT THE BUS GARAGE.</p>	<p>10. FMVSS 105 indicator lights; and</p> <p>11. the red light, indicating low air pressure or loss of hydraulic brake booster power.</p> <p>Drivers must be aware of the following indicators and what each reading means:</p> <p style="text-align: center;">OIL PRESSURE LIGHT OR GAUGE</p> <p>The oil pressure light/gauge indicates if there is sufficient pressure to circulate oil in the engine. If there is insufficient pressure, the warning light will flash red. The gauge will register pounds per square inch oil pressure.</p> <p style="text-align: center;">TEMPERATURE LIGHT OR GAUGE</p> <p>The temperature light/gauge indicates proper temperature of water circulating in engine. Water is too hot if the red indicator light is showing or the gauge registers 220 or above.</p> <p style="text-align: center;">VOLT METER (ALTERNATOR LIGHT)</p> <p>The volt meter (alternator light) indicates if there is sufficient energy to start the engine and run the electrical system. If energy is not sufficient, the red alternator light will show or the gauge will register on discharge side with less than 12 volts.</p> <p style="text-align: center;">LOW AIR BUZZER OR GAUGE</p> <p>The air pressure gauge indicates the amount of air pressure available. The low air pressure buzzer will sound if the pressure drops below 60 pounds per square inch.</p>

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<p>EMPHASIZE THAT IF AUTOMATIC SHIFT STARTS IN ANY POSITION EXCEPT NEUTRAL, THEN YOU HAVE A MAJOR PROBLEM.</p> <p>EMPHASIZE NEED TO BE SURE THAT CHOKE IS FULLY SEATED AFTER ENGINE IS STARTED, SINCE DRIVING WITH THE CHOKE OUT WASTES FUEL.</p> <p>ALSO EMPHASIZE THAT RACING A COLD ENGINE WILL DAMAGE THE ENGINE.</p>	<p style="text-align: center;">FUEL GAUGE</p> <p>Fuel gauge must show adequate supply of fuel to complete trip.</p> <p><u>STARTING A SCHOOL BUS ENGINE</u></p> <p>It is necessary to properly start a school bus engine in order to safely operate the bus. Starting the engine must become a matter of routine, incorporating principles of safety and preventative practices.</p> <p>The following is the correct sequence for starting a school bus engine:</p> <ol style="list-style-type: none"> 1. Set the parking brake to keep the bus from moving. 2. Review gauges before starting. 3. For straight shift buses, depress the clutch pedal to disengage the engine from the transmission. Shift the gear lever into the neutral position. For automatic shifts, the gear lever must also be in neutral. 4. Turn on the ignition key to complete electric circuits and engage the starter switch. <ol style="list-style-type: none"> a. Use the hand choke, if necessary and available. Be careful when using the choke, as over choking will cause the carburetor to flood. b. Use foot accelerator sparingly, since over-pumping will cause the carburetor to flood on a gasoline-powered bus.

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<p>EMPHASIZE THAT THIS WILL TAKE SOME TIME (15-20 MINUTES) AND IS EXACTLY WHAT THE BUS GARAGE MECHANIC WOULD DO.</p>	<ol style="list-style-type: none"> 5. Warm up the engine at fast idle. DO NOT RACE THE ENGINE. 6. Check instruments to see that they are registering properly. <ol style="list-style-type: none"> a. Volt meter shows 12 volts plus. b. Oil pressure gauge registers at the middle of the gauge. c. Temperature gauge is at the midpoint. d. Fuel gauge registers full, or enough to complete the run. e. Air pressure gauge indicates pressure is building. <p>On some occasions, especially during cold weather, the engine might be difficult to start and the air pressure will not build as a result of ice in the airlines. Drivers can correct these problems by taking appropriate actions.</p> <p>In order to build air pressure in cold weather, the driver should:</p> <ol style="list-style-type: none"> 1. Release the parking brake. 2. Start the engine. 3. Run the engine at fast idle with the transmission in neutral. 4. Depress the brake pedal and hold it. 5. When pressure reaches 120, you are to pump the brake several times. 6. Let the pressure build up again without the brake pedal being depressed.

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<p>EMPHASIZE THAT NO BUS WITH AUTOMATIC TRANSMISSION WILL START IF TRANSMISSION IS NOT IN NEUTRAL.</p>	<p>7. If the air pressure does not come up to its required level, repeat process.</p> <p>To start a diesel engine:</p> <ol style="list-style-type: none"> 1. Put key in ignition 2. Depress accelerator ½ way down to the floor for three (3) to five (5) seconds. 3. Release the accelerator. 4. Turn the key to start the engine. 5. If the engine does not start, repeat the process two (2) more times. 6. If after the third try the engine does not start, the driver is to wait two (2) to three (3) minutes and attempt to start again. 7. If engine still fails to start, then call the bus garage. <p>To shut down a diesel engine:</p> <ol style="list-style-type: none"> 1. Bring the bus to a full stop. 2. Set the parking brake. 3. Place the transmission in neutral. 4. Allow the engine to idle for at least three (3) minutes, by the clock. 5. After three (3) minutes have passed, the driver is to pull the engine stop handle. 6. When the engine stops running, the engine stop handle is to be pushed in and fully seated. 7. Remove the key from the ignition.

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<p>EMPHASIZE NEED FOR SMOOTH AND CORRECT SHIFTING OF GEARS SINCE IMPROPER SHIFTING WILL CAUSE WEAR AND TEAR ON CLUTCH AND ENGINE. THIS IS ALSO VERY COSTLY TO THE SCHOOL SYSTEMS. IF A DRIVER HAS TO HAVE SEVERAL CLUTCHES REPLACED, THAT DRIVER MAY BE CONSIDERED TOO COSTLY FOR THE DISTRICT AND BE TERMINATED.</p>	<ol style="list-style-type: none"> 6. Release the clutch gradually to the friction point and hold. At this point you will have the clutch just at the point of friction and the foot brake on and ready to release. Release the foot brake. 7. Depress the accelerator. Hold the point of clutch friction and slightly depress the accelerator to increase the power to prevent stalling. 8. Release the clutch. <ol style="list-style-type: none"> a. Slowly and gradually release the clutch to the remainder of pedal travel and at the same time slowly and gradually increase the accelerator. b. Remove your foot from the clutch pedal immediately and place it flat on the floor. c. Pick up engine speed before shifting to the next higher gear. 9. Shift to the next higher gear. <ol style="list-style-type: none"> a. Depress the clutch pedal and release the accelerator. b. Shift to the next higher gear. c. Release the clutch smoothly, but more quickly than in starting gear, and depress the accelerator smoothly and quickly. To prevent loss of vehicle speed, do not race the engine and slip the clutch. d. Remove your foot from the clutch pedal. e. Proceed in this gear until proper vehicle speed is reached before shifting to the next gear.

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<p>EMPHASIZE THAT WHEN MAKING STOPS TO LOAD/UNLOAD, IT IS NOT NECESSARY TO REACH TOP SPEED BETWEEN EACH STOP AND GO THROUGH ALL THE GEARS. THIS IS ESPECIALLY TRUE IN SUBDIVISIONS WHERE STOPS ARE CLOSE TOGETHER.</p> <p>SHOW OVERHEAD SLIDE AND DISCUSS IN DETAIL.</p>	<p>10. Repeat step 9 until the bus is in cruising gear.</p> <p>11. Except for during an emergency, do not skip a gear in upshifting or downshifting as this causes undue engine and clutch wear.</p> <p>12. Shift up or down as necessary to prevent engine lugging or excessive engine RPM.</p> <p>A driver should approximate miles per hour to be needed before upshifting or downshifting. MPH may vary slightly, depending upon make of engine, transmission, gear ratio and terrain.</p> <p style="text-align: center;">UPSHIFTING (ESTIMATES)</p> <p>FROM 1 TO 2 GEAR – 1-4 MPH</p> <p style="padding-left: 40px;">2 TO 3 GEAR – 5-12 MPH</p> <p style="padding-left: 40px;">3 TO 4 GEAR – 12-20 MPH</p> <p style="padding-left: 40px;">4 TO 5 GEAR – 25-30 MPH</p> <p style="text-align: center;">DOWNSHIFTING (ESTIMATES)</p> <p>FROM 5 TO 4 GEAR – 30-35 MPH</p> <p style="padding-left: 40px;">4 TO 3 GEAR – 25-30 MPH</p> <p style="padding-left: 40px;">3 TO 2 GEAR – 5-10 MPH</p> <p style="padding-left: 40px;">2 TO 1 GEAR – STOP</p> <p style="text-align: center;">DOUBLE CLUTCHING</p> <p>The shifting of gears on nonsynchromesh transmissions is done smoother and faster by double clutching. Double clutching is often recommended for synchromesh transmissions. Since it aligns the gear for easy shifting, the gears should never be forced by improper timing of the shifting process. Reclutching and</p>

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<p>REMIND DRIVERS THAT THEY WILL PRACTICE DOUBLE CLUTCHING WHEN THEY BEGIN TRAINING ON THE SCHOOL BUS IF YOUR DISTRICT HAS ANY MANUAL TRANSMISSION SCHOOL BUSES.</p>	<p>speeding up the engine will, in most cases, prevent excessive clashing. The driver should never allow the engine to pull heavily on an upgrade or over race on a downgrade.</p> <p>To double clutch and up shift, the driver should:</p> <ol style="list-style-type: none"> 1. Depress the clutch pedal and release the accelerator. 2. Shift the gear lever to the neutral position. 3. Release the clutch pedal momentarily to engage clutch. 4. Depress the clutch pedal and shift to the next higher gear. 5. Release the clutch and accelerate the engine at the same time. <p>To double clutch and down shift, the driver should:</p> <ol style="list-style-type: none"> 1. Depress the clutch pedal and release the accelerator. 2. Shift the gear lever to the neutral position. 3. Release the clutch pedal momentarily to engage the clutch and accelerate the engine to more than the original speed. 4. Depress the clutch and skip to the next lower gear. 5. Release the clutch pedal gradually and accelerate the engine to match the speed of vehicle.

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	<p>Some buses are equipped with automatic transmissions and the driver should know how to operate a bus with an automatic transmission. The proper methods to use in operating a bus with an automatic transmission are:</p> <ol style="list-style-type: none">1. Depress the foot brake and move the selector lever into the forward or drive position.2. Release the parking brake, release the foot brake and depress the accelerator. As the speed of the bus increases, the transmission will automatically shift to the next higher gear, until reaching the cruising gear.3. Downshift for additional power by depressing the accelerator toward the floor firmly. A driver can downshift manually by moving the selector lever to the next lower position. <p><u>STEERING</u></p> <p>To be classified as an expert driver, a school bus driver must be able to assume the correct steering position and make all turning maneuvers correctly and smoothly. It is vital that each school bus driver learn and execute the correct procedures necessary to prepare for making and executing turns. When an unusual turn or turnaround is required, the driver should use extreme caution. Added skills and judgement in making turns properly and safely are required as a result of the traffic conditions in which the school bus travels each day.</p>

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	<p>In steering the school bus, it is very important for the driver to use both hands. The correct steering position is:</p> <ol style="list-style-type: none"> 1. Grip the steering wheel with both hands. 2. Hold the left hand at approximately the 9 or 10 o'clock position. 3. The right hand should be at approximately the 2 or 3 o'clock position. 4. Each hand should be located directly across from each other. Hence, 9 and 3 o'clock or 10 and 2 o'clock. 5. Hands should be on the outside of the steering wheel and your thumbs on top or outside of the wheel. <p style="text-align: center;">VISUAL SCAN</p> <p>The eyes should be focused on the road ahead as well as all around the bus. The correct way to accomplish this is to:</p> <ol style="list-style-type: none"> 1. A driver should keep his/her eyes constantly on the move to obtain the "big picture." 2. Look straight ahead. Use the left side, right side and rear view mirrors. <p>To steer the bus, the driver should use the hand-over-hand method on a regular tilted steering wheel. On a lap wheel (steering wheel that sits almost flat on the driver's lap), the driver will probably have to use the push-pull method of steering. These are the only two acceptable techniques to be used for turning.</p>

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<p>SIGNAL ONLY FOR ACTION THAT YOU, AS A BUS DRIVER, WOULD TAKE.</p>	<p><u>TURNING</u></p> <p>There are some general procedures for turning the school bus which all drivers must know and utilize.</p> <p>In preparing for turns, the driver must:</p> <ol style="list-style-type: none"> 1. Check traffic at the front, sides and rear of the bus. 2. Give proper signals to move the school bus into the proper lane for turning. <p>When making turns, the driver must:</p> <ol style="list-style-type: none"> 1. Give the proper turn signal. 2. Reduce speed and before turning, downshift to the proper gear needed to safely execute the turn. 3. Check for a clear right-of-way to ensure that traffic signals give the right-of-way to you, watch for pedestrians, traffic control signs and other vehicles. Use all outside mirrors to check around the bus. <p>To properly execute the turn, the driver must:</p> <ol style="list-style-type: none"> 1. Make the turn smoothly without a strain on the engine. 2. Never shift gears during a turn. 3. Check mirrors before and while executing a turn. 4. Enter the proper lane and check the turn signals for cancellation.

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<p>EMPHASIZE THAT THE DRIVER MUST HAVE COMPLETE CONTROL OF THE VEHICLE. WHEN YOU LET THE WHEEL SPIN IN YOUR HAND (CONTROLLED SLIPPING), IT MAY OR MAY NOT RETURN TO THE STRAIGHT AHEAD POSITION AT THE CORRECT TIME.</p> <p>EMPHASIZE THAT EACH BUS HAS A TURNING POINT. THIS IS A POINT ON THE BUS THAT, WHEN THE POINT IS EVEN WITH THE CORNER, A TURN CAN BE MADE SAFELY WITH THE REAR WHEELS NOT CROSSING THE CURB. THE TURNING POINT WILL VARY FROM BUS TO BUS.</p> <p>SHOW SLIDE, DISCUSSING THE PROPER PROCEDURES FOR MAKING A RIGHT TURN, A LEFT TURN AND TURNAROUNDS.</p> <p>WHILE DISPLAYING SLIDES AND DISCUSSING PROPER PROCEDURES, CONTINUALLY REFER TO AND EMPHASIZE THE POINTS COVERED IN PREPARING, MAKING AND EXECUTING A TURN.</p>	<p>5. Steer the wheels back into position by using the hand-over-hand recovery technique whenever possible or the push-pull technique in the case of a non-tilt lap wheel.</p> <p>When turning right, school buses must have curb clearance for the rear wheels. Two (2) procedures may be used in executing right turns. Regardless of the method used, the school bus driver must remember that the responsibility for making a safe turn rests with the bus driver.</p> <p>One alternative is to approach the corner in the right lane, about four feet (4') from the curb. The bus should be close enough to the curb to keep a car from passing on the right. As soon as the front wheels pass the corner, turn wide to the right, swinging over the center of the side street if necessary, in order for the right rear wheels to clear the curb. (It is not recommended to cross the side street center lane marking.)</p> <p>The other alternative to be used, when the street onto which the turn is to be made is narrow, may require the same approach as above, but then, steer left far enough to place the right rear wheel in position to miss the curb, but not far enough away to invite passing on the right.</p> <p style="text-align: center;">MAKE A RIGHT TURN</p> <ol style="list-style-type: none"> 1. Give the proper right hand turn signal. 2. Reduce speed and, before turning, downshift to the proper gear needed to execute the turn.

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	<ol style="list-style-type: none"> 3. Position the bus to the right side of the lane. 4. Check for a clear right-of-way. <ol style="list-style-type: none"> a. Check traffic signals, signs, pedestrians and/or other vehicles. b. Use both outside mirrors. 5. Executing the turn. <ol style="list-style-type: none"> a. Make the turn smoothly without any strain on the engine. b. Never shift gears during a turn. c. Check the right and left mirrors while executing the turn. This will enable you to check your pivot point while turning. d. Enter the most available right lane and check turn signal for cancellation. e. Steer the wheels back into position by using the hand-over-hand recovery technique, unless the bus is equipped with a non-tilt lap wheel. <p style="text-align: center;">MAKING A LEFT TURN</p> <ol style="list-style-type: none"> 1. Give the proper left hand turn signal. 2. Reduce speed and downshift, if needed. 3. Position the bus to the left edge of the lane. 4. Check for a clear right-of-way. <ol style="list-style-type: none"> a. Check traffic signals, pedestrians or other vehicles. b. Use both outside mirrors.

- c. If required to stop, keep front wheels straight and brake pedal depressed. This will prevent drifting and activate the brake lights and also prevents being shoved into the line of approaching traffic if you were to be struck in the rear.
5. Execute the turn.
 - a. Drive into the intersection and make the turn smoothly, without strain on the engine.
 - b. Check the left and right mirrors while executing the turn.
 - c. Never shift gears in a turn.
 - d. Enter the roadway in the most available left lane and check the turn signal for cancellation.
6. After completing a left turn upon a multiple-lane highway/street, pick up speed, activate right turn signal and move into the right lane as soon as it is safe to do so.

MAKING A TURNAROUND –**TWO POINT TURNAROUND**

1. Give the proper turn signal and tap brakes well in advance of turnaround.
2. Stop the bus in the proper position on the roadway – one (1) bus length ahead of road to be backed into.

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<p>SHOW SLIDE OR OVERHEAD AND DISCUSS THE SELECTION OF LANES WHEN TURNING FROM VARIOUS TYPES OF ROADS.</p>	<ul style="list-style-type: none"> a. Check traffic – front and rear. b. Visibility should be excellent in all directions. c. Have traffic move around the bus, if possible. d. Back into the roadway or driveway, using outside mirrors. e. Check traffic and re-enter the roadway with caution, after proper signaling. <p style="text-align: center;">LANE SELECTION IN TURNING</p> <p>Turning left from:</p> <ul style="list-style-type: none"> 1. Two-way roadway onto a two-way road with two (2), four (4) or six (6) lanes. 2. Two-way roadway onto a one-way road. 3. One way onto a two-way road. 4. One way onto another one-way road. 5. Two-way onto a three lane two-way road. 6. Three lane, two-way onto a two-lane two-way. <p>Turn right from:</p> <ul style="list-style-type: none"> 1. Any type of roadway onto any type of roadway. <p><u>STOPPING THE SCHOOL BUS</u></p> <p>A professional school bus driver will always stop the school bus in a smooth and safe manner. The driver must have the bus under control at all times and know that the distance required to make a smooth, safe stop increases as the speed and weight of the bus increases.</p>

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<p>EMPHASIZE THAT THE BUS STILL MOVES FORWARD DURING THE REACTION TIME IN DIRECT RELATION TO THE SPEED OF THE BUS. IT IS $\frac{3}{4}$ OF A SECOND BEFORE ANY SLOWING ACTION BEGINS.</p> <p>GET RANDOM REMARKS FROM STUDENTS ON:</p> <ol style="list-style-type: none"> 1) SPEED 2) CONDITION OF BRAKES 3) CONDITION OF TIRES 4) TYPE OF ROAD SURFACE 5) LOAD ON VEHICLE, AND 6) WHETHER UPHILL OR DOWNHILL <p>SHOW SLIDE OR OVERHEAD AND DISCUSS INFORMATION ON SLIDE.</p>	<p>The normal reaction time for most drivers is $\frac{3}{4}$ of a second. This might not seem like very much time, but even in $\frac{3}{4}$ of a second, the bus can cover a considerable distance depending upon the speed of the bus.</p> <p>How far does a bus travel in the $\frac{3}{4}$ of a second that it takes a driver to remove his/her foot from the accelerator and apply the brake?</p> <p>This interesting bit of traffic arithmetic can be used to determine how far you would travel in $\frac{3}{4}$ of a second.</p> <ul style="list-style-type: none"> □ Take the first digit of the speedometer reading and add it to the total speed. This will give the reaction distance in feet. <p>EXAMPLE: 36 mph + 3 = 39 feet in $\frac{3}{4}$ second 45 mph + 4 = 49 feet in $\frac{3}{4}$ second</p> <p>Now that the driver has the brakes on, the bus will still travel quite a distance before it can be brought to a stop. This is called “braking distance.”</p> <p>What determines braking distance?</p> <p>Braking distance varies with speed. It increases at a geometric rate as speed increases.</p> <p>To stop a bus, the driver must allow for reaction time and braking distance. A driver can allow for this by maintaining a “space cushion” between the bus and the vehicle ahead. To determine the safe following distance, the driver must allow one (1) second of following distance for each ten feet (10’) of vehicle length up to forty (40) mph. The driver should add one (1) second if</p>

traveling over forty (40) miles per hour. In Kentucky, all bus drivers should assume that their vehicle is at least forty feet (40') long, hence, no Kentucky school bus driver should ever be closer than four (4) seconds. To apply the four (4) second rule, a driver picks a point ahead (for example: overhead bridge, post, sign, etc.). As the vehicle passes the selected point, start counting "one thousand and one, one thousand and two, etc." if you don't complete "one thousand and four" by the time the front of the bus passes the selected point, you are following too close.

Drivers should always operate their bus within posted speed limits and with consideration for road and weather conditions. Be sure to drive at a speed that will permit stopping within the clear distance ahead.

Correct stopping procedures keep down wear and tear on the brake system as well as maintenance costs. To stop correctly, a school bus driver must follow these procedures:

1. Stopping in cruising gear.
 - a. Release the accelerator and depress the brake pedal.
 - b. When proper mph is obtained for any gear, downshift to the next lower gear. This will reduce heat buildup and brake wear.

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<p>EMPHASIZE THE NEED FOR PRACTICE WITH EACH PRACTICE.</p>	<ol style="list-style-type: none"> 2. Stopping when in a low gear or at 10 mph or less. <ol style="list-style-type: none"> a. Depress the clutch pedal and release the accelerator. b. Apply brakes gradually by increasing the pressure. c. Reduce brake pressure slightly but not completely just before coming to a stop to prevent jerking. d. Shift gear lever into the neutral position. e. Release the clutch and remove your foot from the pedal, if manual transmission. <p>There will be occasions when it will become necessary for the bus driver to stop the bus on a hill or incline. When this happens, it becomes necessary for the driver to engage the clutch and smoothly put the bus in motion without rolling back into vehicles behind the bus or damaging the clutch or transmission. There are correct procedures to be used to accomplish this goal.</p> <p>To start on a hill, the driver must do these things in sequence:</p> <ol style="list-style-type: none"> 1. With your right foot on the brake, use left foot to depress the clutch and shift transmission into second gear. Release the clutch slowly until the engine begins to labor slightly. 2. Hold the clutch at that point.

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<p>EXPLAIN THE DIFFERENCES FOR BUSES EQUIPPED WITH AUTOMATIC TRANSMISSIONS.</p>	<ol style="list-style-type: none"> 3. With your right foot, release the brake pedal and drop your right foot onto the accelerator, applying enough pressure to hold the weight of the bus without drifting backward. 4. Release the clutch smoothly, applying enough pressure to pull the bus smoothly up the hill. <p>There will be times when the bus must stop on a hill.</p> <p>To do this correctly on the upgrade, the driver must:</p> <ol style="list-style-type: none"> 1. Check for following traffic. 2. Apply the brake lightly for a smooth stop. 3. Depress the clutch with your left foot. Shift into neutral. 4. Allow an extra safety margin between the bus and the vehicle ahead. <p>On the downgrade, the driver should follow Step #1 above, downshift to reduce speed as he/she sees the need to stop; follow Step #2 above and tap the brakes twice.</p> <p><u>PARKING THE SCHOOL BUS</u></p> <p>Drivers must be able to park the bus in several situations. To comply with state laws and properly park the bus so that it will not become a traffic hazard or problem, drivers must know how to legally park the bus. Care must also be utilized when parking the bus so that incidents can be prevented and the safe, efficient operation of the bus continues.</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE THAT A HELPER SHOULD ALWAYS BE USED WHEN BACKING.</p> <p>EMPHASIZE THAT THIS IS THE LEAST DESIRABLE CHOICE FOR PARKING A BUS. IT WOULD BE BETTER TO PARK ELSEWHERE, IF POSSIBLE, RATHER THAN TO USE ANGLE PARKING.</p>	<p>Drivers will be required at one time or another to park the bus in the following ways:</p> <ol style="list-style-type: none"> 1. at an angle; 2. perpendicular; 3. parallel; and/or 4. on a hill. <p>The procedure for angle parking is:</p> <ol style="list-style-type: none"> 1. When preparing to forward park in a 45 degree angle space, position the bus as far out in the driving lane as is practical. 2. Check the left, then right mirrors. 3. Signal for the right turn. 4. Drive forward past the right edge of the angle space and turn sharply so that the front bumper clears the left edge of the angle space. 5. Move forward slowly, watching the right mirror to see that the bus clears the right edge of the angle space. 6. Position the bus in the center of the space. <p>The next procedure is the one which drivers will use most because it is used when parking the bus at most bus garages and compounds. The procedure for left side perpendicular parking is to:</p> <ol style="list-style-type: none"> 1. Drive past the parking stall. 2. Check the left mirror. 3. Shift to reverse.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
	<ol style="list-style-type: none"> 4. Turn the wheels to the left. 5. Slowly back toward the stall, observing the left mirror – then right mirror for dual wheel positions. 6. Keep the left rear wheel close to the front corner of the stall. 7. Begin to straighten the wheels. 8. Use mirrors to monitor the direction of the bus. <p>Parallel parking is the next procedure which drivers must be able to perform correctly and legally. When preparing to parallel park:</p> <ol style="list-style-type: none"> 1. Signal your intentions well ahead of time. 2. Position the bus next to and about three feet (3') from the vehicle parked in front of the space to be occupied. 3. Stop when the rear of the bus is even with the rear of the front vehicle. 4. Check the left mirror, right mirror and then left mirror again. 5. Shift into reverse. 6. Back slowly while turning the steering wheel slowly to the right until the right rear wheel is in line with the rear of the front parked vehicle. 7. Straighten the steering wheel when the entrance door is in line with the rear of the vehicle parked in the front space.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE AGAIN TO ALWAYS USE A HELPER WHEN BACKING.</p>	<ol style="list-style-type: none"> 8. Back straight in until the front bumper reaches the rear bumper of the front vehicle. 9. Continue backing slowly while turning the steering wheel sharply to left when the front of the bus clears the rear of the vehicle. 10. Check the left mirror to position the bus. 11. Stop the bus just short of the vehicle parked behind. 12. Shift into drive or the normal starting gear. 13. Center the bus in the space no more than one foot (1') from the curb. <p>Sometimes drivers will be faced with parking the bus on a hill. It is very important that the wheels be positioned properly when a bus is parked on a hill. The wheels must be positioned as follows:</p> <ol style="list-style-type: none"> 1. Parked on upgrade with curb, turn the wheels outward. 2. Parked on upgrade without a curb, turn the wheels inward. 3. Parked on downgrade with or without a curb, turn the wheels inward. <p>Given the high visibility and the public relations aspects of school bus operators, it is important that the driver set a good example of obeying the law.</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE THAT PARKING IS INAPPROPRIATE ON ANY PUBLIC STREET IN A POSITION WHERE MOTORISTS WOULD BE PRONE TO INTERPRET THE BUS POSITION AS A BUS LOADING LOCATION.</p>	<p style="text-align: center;">PARKING IS PROHIBITED:</p> <ul style="list-style-type: none"> ❖ on a sidewalk; ❖ in front of any driveway, alley, theater, emergency exit, or fire escape; ❖ within intersections; ❖ within fifteen feet (15') of fire hydrants; ❖ on crosswalks; ❖ within twenty feet (20') of crosswalks, or if none, within fifteen feet (15') of intersection of property lines at intersection of highways; ❖ between safety zones and adjacent curbs or within thirty feet (30') of points on curb immediately opposite ends of the safety zone, unless a different length is indicated by official signs; ❖ within fifty feet (50') of the nearest rail or railroad crossing; ❖ within twenty feet (20') of driveway entrance to any fire station and on the side of a street opposite entrance to any fire station within seventy-five feet (75') of said entrance when proper signs are posted; ❖ along the side or opposite a street evacuation or obstruction when stopping, standing or parking would obstruct traffic; ❖ on highway side of a vehicle stopped or parked at the edge or curb or a street;

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

- ❖ upon a bridge or other elevated structure upon a highway or within a highway tunnel;
- ❖ at a place where official signs prohibit stopping;
- ❖ within five hundred feet (500') of an incident at which police officers are in attendance, when the scene of the incident lies outside of a city or village; and/or
- ❖ more than twelve inches (12") from a curb on the main traveled part of the highway when it is possible to park off the main traveled part of the highway outside of the city.

When the bus must be moved from the parking space, the following procedures must be used to leave a parallel parking space:

1. Back the bus as far as possible (requires depth perception skills, use spotter if possible).
2. Check the left mirror.
3. Put into drive or normal starting gear.
4. Turn steering wheel sharply to the left.
5. Check for traffic and signal left.
6. Enter the travel lane when clear.
7. Check mirrors for clearance of the front and right side of the bus.
8. Steer bus into the proper lane position.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
	<p>For leaving an angular or perpendicular parking space, the procedure is to use either forward or backward motion. Using forward motion, the driver moves the bus forward until the rear of the bus has cleared the other vehicle, using mirrors to check. Using backward motion to leave, the driver backs when traffic permits until the front of the bus clears the obstacles. <u>At no time is it recommended to back a school bus out into traffic flow.</u></p> <p><u>RAILROAD CROSSING PROCEDURES</u></p> <p>Safety procedures at all railroad grade crossings dictate that extreme care be exercised by school bus drivers. Crossing railroad tracks represents one of the greatest hazards for school buses. Mass casualties could occur in the event of a train-school bus incident. STOP, LOOK AND LISTEN are the keys. The safe and legal way to cross a railroad track must be automatic. All buses, loaded or empty, MUST STOP and specific procedures must be followed before crossing any railroad at grade level.</p> <p>GENERAL INFORMATION</p> <ol style="list-style-type: none"> 1. The driver of any school bus, whether carrying passengers or not and before crossing a grade level of any track or tracks of a railroad, must bring his/her bus to a full stop not less than fifteen (15') or more than fifty feet (50') from the rails nearest the front of the bus.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

2. When drivers are making stops for railroad crossings, they shall carefully observe traffic and reduce their speed, far enough in advance of the stop, to avoid trapping other motorists in panic stops or rear end collisions with the bus. One way to aid motorists is to lightly tap your brakes as you approach the crossing, four (4) or five (5) times at a minimum. Generally, on multiple lane roadways, no such stop should be made in the center left lane.
3. The driver shall then set the parking brake and shift the gear selector to neutral.
4. No special signs, signals or flashers shall be activated while stopped or stopping for this purpose.
5. The driver, when stopped fully, will open the service door and driver side window and turn off all noisemakers and must, after the stop and while stopped, listen and look in both directions along the track or tracks for approaching engines, trains or cars. Before resumption of motion, the service door is to be closed.
6. If the view of the track or tracks for a distance of one thousand feet (1000') in either direction is not clear, or obstructed in any way, no portion of the bus may be propelled onto the tracks, until, by personal visual inspection, the driver has

ascertained that no train is approaching. In no instance may a signal indicating safety be considered as conclusive or serve to override this precaution.

7. Drivers shall, in every instance, shift into the lowest gear and shall not, under any circumstances, shift gears when the bus is actually crossing tracks or a railroad crossing.
8. In the event that a train has passed over the crossing, no bus driver shall drive his/her bus onto the track or tracks until the train has sufficiently cleared the crossing so that the driver is certain that no train, hidden by the first train, is approaching on an adjacent track.
9. For improved hearing, the window shall be opened and all noise equipment (fans, radio, etc.) should be shut off until the bus has cleared the crossing.

AT CROSSINGS CONTROLLED

BY SIGNALS ONLY

1. In addition to the aforementioned safety standards, the driver of a school bus that has stopped at any railroad track or tracks, at which there is (in operation) any flashing red lights and/or bell, shall not proceed across such track or tracks UNLESS authorized by a law enforcement officer or train personnel. This does not relieve

the driver of personal responsibility for safe crossing.

2. In the event that switching operations, or stopped trains, delay the use of the crossing unnecessarily for frequent or extended periods of time, complaints should be made through proper channels to railroad management and traffic authorities.

**AT CROSSINGS CONTROLLED BY
CROSSING GATE OR BARRIER**

1. No bus driver shall drive his bus through, around or under any crossing gate or barrier at a railroad crossing while such gate or barrier is closed or being opened or closed.
2. The driver must never accept a lack of movement as indicating that the device is either in or out of order or not properly handled, but must always take a railroad grade crossing as a conclusive warning of danger and must not cross the tracks until he has ascertained that no train is approaching.
3. The driver should treat multiple tracks as one (1) track only.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE CORRECT PROCEDURE FOR ALL POINTS.</p> <p>EMPHASIZE TO KEEP FOOT ON BRAKE PEDAL.</p> <p>EMPHASIZE NO SHIFTING OF GEARS.</p>	<p style="text-align: center;">WEATHER CONDITIONS</p> <p>1. During wet, stormy or foggy weather, before placing part of the bus on the tracks, the driver must know conclusively that the crossing can be made in safety. Any use of flares, etc., in addition to warning signals or devices maintained at such railroad crossings, must be taken as an additional warning of danger.</p> <p style="text-align: center;">BEHAVIOR OF PASSENGERS</p> <p>1. When stopping for any railroad track at grade, all passengers must be silent until crossing is completed. Such signal for silence shall be given by the driver in a manner deemed suitable and appropriate.</p> <p style="text-align: center;">CROSSING PROCEDURE/SEQUENCE</p> <p>The school bus driver will take the following steps in sequence each time he crosses a railroad track in a school bus:</p> <ol style="list-style-type: none"> 1. Prepare to stop. <ol style="list-style-type: none"> a. Request silence. b. Check traffic control devices. 2. Stop the bus. <ol style="list-style-type: none"> a. Follow legal stopping procedure. b. Turn off heaters, fans, noise abatement switch. c. Tap the brakes at least four (4) or five (5) times when slowing.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

- d. Stop in a position that gives a clear view of the tracks in both directions. The front bumper must be no closer than fifteen feet (15') or further than fifty feet (50') from the track.
 - e. Set the parking brake.
 - f. Shift into neutral gear (both straight and automatic transmissions).
3. Look and listen.
 - a. Open the service door and driver's window.
 - b. Look and listen through the open window and door.
 4. If no indication of approaching train:
 - a. Shift into the lowest gear possible;
 - b. Release the parking brake;
 - c. Look and listen a second time; and
 - d. Close the door and proceed quickly and smoothly across the track.
 5. If there is an approaching train;
 - a. Hold bus position;
 - b. (after train passes) wait fifteen (15) seconds; and
 - c. follow items under Procedure #4.
 6. Multi-track Crossing
 - a. Treat multiple tracks as one (1) track.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>TREAT AS A SINGLE TRACK CROSSING.</p>	<ul style="list-style-type: none"> b. Make sure no train is approaching on any track. c. After a train passes, wait fifteen (15) seconds and until other tracks become visible before proceeding. A second train may be approaching from the opposite direction. d. Follow items under Procedure #4. <p>7. Railroad Traffic Control Devices</p> <ul style="list-style-type: none"> a. Flasher Lights and Bells <ul style="list-style-type: none"> o These are warnings of an approaching train. o Vehicles may proceed around the gates only at the direction of a law enforcement officer or an authorized railroad representative. Even then the driver must be certain of safety. b. Gates <ul style="list-style-type: none"> o All traffic must obey these devices. o Vehicles may proceed around the gates only at the direction of a law enforcement officer or an authorized railroad representative. c. Railroad crossing controlled by a flagman

INSTRUCTOR GUIDELINES/NOTES	CONTENT
	<ul style="list-style-type: none"> • Make a safety stop. • Follow directions of the flagman as to when to cross. • Cross using items in Procedure #4. <p><u>SPEED OF TRAVEL FOR SCHOOL BUSES</u></p> <p>The school bus shall not be operated at a speed in excess of the posted speed over any section of highway over which the bus travels. The driver shall not drive the school bus on any roadway, at any time, at a speed where the conditions of the roadway, weather conditions or other extenuating circumstances would likely make it unsafe for the bus to travel at that speed.</p> <p>Prevailing environmental conditions is one area that can dictate the speed at which a school bus should be operated. The basic rule-of-thumb is to drive at no greater speed than will permit stopping in assured clear distance ahead.</p> <p><u>PROPER LANE USAGE</u></p> <p>Lane usage and the position of the bus on the road are vital to the safe and efficient completion of each bus run.</p> <p>Safety first, Schedule second is the key.</p> <p>Drivers must stay in one lane for normal driving, not straddling lane marker lines or obstructing more than one lane. Drivers should use the parking lane for stopping and parking.</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>DISCUSS WHEN CHANGING LANES IS NECESSARY. ASK QUESTIONS.</p>	<p>Generally, where there is more than one lane for traffic going in one direction, travel in the furthest right lane (not including parking lane), unless parking or turning left. Drive at a safe distance from other vehicles. Use the four (4) second minimum rule for following vehicles. Remain at least fifty feet (50' – 1 ¼ bus lengths) behind a bus leaving school grounds.</p> <p>When changing lanes, look for rear approaching traffic in the new lane. Glance out the window to check any blind spots. Move your head enough to see around the blind spot by using the mirrors. On multi-lane roads, look for vehicles about to enter the new lane from the adjacent lane. Check fender and west coast mirrors to observe vehicles passing in the new lane, following vehicles closing fast from the rear in the new lane and/or following vehicles about to enter the new lane.</p> <p>Position the bus so that you safely and smoothly accomplish the required maneuver.</p> <p style="text-align: center;">BEING PASSED</p> <p>When the bus is being overtaken and passed, the driver has a situation which could contribute to a very hazardous situation. The possibility for a potentially dangerous incident exists. The bus driver could be in a head-on collision, sideswiped, or run off the road. Other vehicles can pass you in a number of ways.</p> <ol style="list-style-type: none"> 1. They can overtake and pass you on a straight road – a normal passing situation.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

2. They can pass you as you are pulling out of a parking space.
3. They can attempt to pass just as a driver moves out to pass another vehicle.
4. They can pass on the right, which is legal on multi-lane roads or on one-way streets if they do not leave the roadway, but a driver still has the responsibility for preventing an incident (last clear chance law).

There are several things a driver must do to make the act of being overtaken and passed a very safe one.

1. When there is no possible hazard, stay in the right hand lane and maintain speed.
2. Help the other driver pass. Check for oncoming traffic. Slow down if the passing vehicle will need more room to get back in line in.
3. When another vehicle is also approaching from the opposite direction creating a hazard for the vehicle trying to pass, move the bus to the parking lane or leave the roadway if it seems that the passing vehicle cannot complete the pass before the oncoming vehicle reaches you, if safe to do so.
4. Before a driver changes lanes, check west coast and fender mirrors and “glance back” to make sure blind spots are clear. Use lane change signal. Move over only when the lane is clear. Proper order is 1) signal; 2) mirrors; and 3) glance.

DO NOT STARE.

5. Get into the proper lane early when making a turn. When turning right. Stay close enough to the right curb to block anyone from passing on the right. Use the turn signal early.
6. Don't move out of a parking space to check for oncoming traffic. Take a good look before the bus is moved. Signal your intention. Wait for a break in traffic and pull out slowly but efficiently.

MERGING

Care must be used when the driver leaves the bus compound and begins the route. Smooth entry into the flow of traffic is vital for the safe operation of the school bus. Follow these steps to accomplish a smooth entry into the flow of traffic at a stop:

1. Stop at point of entry into the traffic flow.
2. Activate right or left turn signal.
3. Look to determine that there are no pedestrians in the path of the bus.
4. Check mirror to determine that all passengers are seated.
5. Look to the right and left to determine whether there are vehicles in motion on the roadway to be entered.
6. Yield right-of-way to vehicles already on the road.
7. Look for a suitable gap in traffic and when safe, accelerate smoothly into the road, utilizing the

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p data-bbox="196 1079 695 1329">EMPHASIZE THAT THERE USUALLY IS NO GREAT NEED FOR SCHOOL BUSES TO PASS ANOTHER VEHICLE PROVIDED THE SCHOOL BUS DRIVER IS OPERATING THE BUS PROPERLY.</p> <p data-bbox="196 1556 667 1623">RE-EMPHASIZE AND DISCUSS THE FOUR SECOND RULE.</p>	<ol style="list-style-type: none"> <li data-bbox="792 195 1406 226">6. Check traffic behind before changing lanes. <li data-bbox="792 258 1138 289">7. Move into the left lane. <li data-bbox="792 321 1260 352">8. Accelerate as the bus moves left. <li data-bbox="792 384 1490 485">9. Signal the vehicle by tapping the horn or flashing the lights. <li data-bbox="792 516 1377 548">10. Signal intention to return to the right lane. <li data-bbox="792 579 1490 737">11. Return to the right lane when driver can see all of the passed vehicles in your fender and west coast mirrors. <li data-bbox="792 768 1166 800">12. Cancel directional signal. <li data-bbox="792 831 1490 932">13. Resume cruising speed as soon as driver has completed the passing maneuver. <p data-bbox="792 957 1292 989">DO NOT PASS if the vehicle ahead is:</p> <ol style="list-style-type: none"> <li data-bbox="792 1020 1349 1052">1. signaling or otherwise indicating a turn, <li data-bbox="792 1083 1333 1115">2. changing lanes preparatory to passing; <li data-bbox="792 1146 1133 1178">3. weaving or wandering; <li data-bbox="792 1209 1130 1241">4. decelerating suddenly; <li data-bbox="792 1272 1422 1304">5. passing children, cyclist(s) or animals; and/or <li data-bbox="792 1335 1255 1367">6. being passed by another vehicle. <p data-bbox="792 1398 1442 1430">FOLLOWING DISTANCE/SPACE CUSHION</p> <p data-bbox="743 1461 1490 1818">To operate a school bus safely and legally in today's traffic requires the school bus driver to be constantly alert. This is especially true when following a school bus or another vehicle. The school bus driver must maintain a safe following distance. Keep a "space cushion" in order to comply with the law and to avoid an incident. There</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE!!!!</p> <p>THIS IS THE SECRET TO DEFENSIVE DRIVING.</p>	<p>are four (4) simple steps that will help the school bus driver to properly follow another bus or vehicle.</p> <ol style="list-style-type: none"> 1. Stay alert. Watch for signs from the driver ahead as to what he intends to do. Is his turn signal on? Are his brake lights lighted? Has he been gradually drifting to the right or left as if to prepare to turn? 2. Stay ahead of the situation. Look beyond the driver ahead to see situations that may force him to act quickly and thereby become a threat to you. Are there vehicles in the roadway or on the shoulder? Are the intersections marked or unmarked? Are cars, pedestrians or livestock present? 3. Stay back. Use and apply the four (4) second minimum rule. 4. Start slowing sooner. Slow down and touch your brakes the instant you see a hazard developing that may require you to stop or take evasive action. Failure to do this is known as “delayed braking,” a serious flaw in your driving technique. A competent, professional school bus driver will rarely, if ever, have to make a panic stop. <p>The best advice that a driver can adhere is to: STAY AWAY FROM PEOPLE. Do not travel next to or close to any other vehicle(s), person(s) or obstacle(s) at any time unless it is absolutely necessary.</p>

INTERSECTIONS/CROSSWALKS

A thorough knowledge of highway signs, signals, markings and legal rights on the road are necessary to be a safe school bus driver.

Without traffic laws, rules and controls, travel by a motor vehicle would be very unsafe and impractical. We have already covered two (2) of the three (3) areas of importance – use of lanes and parking. In this section, we will look at speed, crossing intersections and turning on red.

Any time a driver comes to a place where others may cross or enter his/her path, they must look to each side to make sure it is safe to proceed. These places include intersections, crosswalks, railroad crossings, parking lots, school areas, playgrounds, shopping centers and related areas.

Crossing intersections is a time for extreme care. Not all drivers obey the traffic control devices. School bus drivers must follow these rules any time they approach an intersection.

1. Look both ways.
 - a. Look to the left first since traffic coming from the left is closer.
 - b. Look to the right.
 - c. A driver should take one more look to the left before he/she pulls out, just in case

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE THAT, IF VIEW IS OBSTRUCTED AND INTERSECTION CAUSES A CONTINUAL PROBLEM, ASK YOUR BUS TRANSPORTATION SUPERVISOR TO EVALUATE THE SITUATION AND CHANGE YOUR ROUTE TO AVOID THE HAZARD.</p>	<p>there is something they did not see the first time.</p> <ol style="list-style-type: none"> 2. Do not rely on traffic signals. <ol style="list-style-type: none"> a. At an intersection, look left and right, even if other traffic has a red light or a stop sign. Someone may disobey either one. 3. Make sure you have a good view. <ol style="list-style-type: none"> a. If the view of a cross street is blocked by a building or a row of parked vehicles, edge forward slowly until visibility is clear in both directions. b. If traffic in one lane is blocking the view of another lane, wait until it clears. If a driver tries to look by putting the front of the bus into the other lane, they may get hit. <p>Crosswalks are set aside for people to cross the street. Usually they are marked with yellow or white lines and have warning signs.</p> <p>Most crosswalks are located at intersections. Some are located, however, in the middle of the block, especially in cities and town. While turning a corner, watch for pedestrians who are about to cross the street you are turning onto. Remember, if a driver has a green light, the pedestrian has a green light also. The law requires drivers to yield to pedestrians in the crosswalk.</p> <p>Certain rules govern the crossing and entering of</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE THAT A DRIVER CAN BE RIGHT AND STILL BE IN AN INCIDENT. DON'T BE DEAD RIGHT!!!!</p>	<p>intersections. The right-of-way rules contribute to the safe passage of the vehicles through an intersection provided each driver obeys the rules.</p> <ol style="list-style-type: none"> 1. Right-of-way rules for an intersection not controlled by signs or signal devices. <ol style="list-style-type: none"> a. Generally drivers on single lane or two (2) lane roadways must yield the right-of-way to vehicles on divided roadways or roadways of three (3) or more lanes. b. Usually, drivers on unpaved roadways must yield the right-of-way to vehicles on paved roadways. c. Drivers on roadways consisting of the same number of lanes and similar surfacing must yield the right-of-way to vehicles approaching from the right which are close enough to contribute to a hazard. d. Drivers who are required to yield the right-of-way may enter the intersection only if the movement can be made without interference or collision with traffic using the intersection. 2. Right-of-way at an intersection with a stop sign or yield sign. <ol style="list-style-type: none"> a. Drivers approaching intersections controlled by stop or yield right-of-way signs must obey such signs and may enter

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE THAT SCHOOL BUS DRIVERS SHOULD NEVER TURN ON RED.</p>	<p>the intersection if the movement can be made without interference or collision with traffic using the intersection.</p> <p>3. Right-of-way at an intersection with a signal light.</p> <p>a. When stop and go lights are operating, a driver entering the intersection on a green light has the right-of-way.</p> <p>b. When stop and go lights are operating, a driver approaching the intersection on a red light alone must stop. After waiting until the intersection may be safely entered, a driver may turn right or if the intersecting streets are both one-way, may turn left. (Turns on red lights may be prohibited by traffic signs. A Kentucky school bus shall not turn right on red. REMEMBER: SAFETY FIRST ...SCHEDULE SECOND!!!) The driver may drive only in the direction the arrow points and shall yield the right-of-way to pedestrians lawfully using the crosswalk and to other traffic lawfully using the intersection.</p> <p>c. When a flashing red light is operating, a driver approaching the red light must stop before entering the intersection. Procedure and right-of-way after stop are</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EMPHASIZE THE NEED FOR EXTREME CARE WHEN APPROACHING A FLASHING YELLOW LIGHT. SOME PEOPLE ACT AS IF IT WERE A FLASHING RED AND STOP. YOU COULD REAR-END A VEHICLE IF THIS HAPPENS AND YOU ARE NOT PREPARED.</p>	<p>the same as at a stop sign.</p> <p>d. A flashing yellow light is a caution signal to warn drivers of a traffic hazard and requires a speed slow enough to avoid a collision.</p> <p>4. Right-of-way when entering a roadway.</p> <p>a. A vehicle entering a crossing or roadway from an alley, building, private road or driveway must yield to vehicles on the roadway.</p> <p>b. A vehicle merging from an alley, driveway (including a school driveway), or building in a business or residential area must stop before driving onto the crosswalk or past the sidewalk, and must yield to any pedestrians and to vehicles on the roadway.</p> <p>c. A vehicle entering a roadway or traffic lane from an angle or parallel parked position, or from the roadway shoulder, must yield to all vehicles close enough to contribute to an immediate hazard.</p> <p>5. Right-of-way on left turns.</p> <p>a. A vehicle turning left at an intersection must yield to those vehicles approaching from the opposite direction that are close</p>

enough to contribute to an immediate hazard.

- b. A vehicle turning left within an intersection or into an alley, private road, or driveway must yield to any vehicle approaching from opposite direction which is within the intersection or close enough to be an immediate hazard.
6. Right-of-way on the approach of an emergency vehicle.
 - a. The approach of an emergency vehicle using a siren and/or red light requires other vehicles to move to the right, clear of any intersections and stop until the emergency vehicle has passed. When conditions make it impossible to move to the right, the vehicle should stop and remain stopped until the emergency vehicle has passed. Under no circumstances should a driver ever pull to the left. Emergency vehicle drivers are taught to pass on the left.

TRAFFIC AIDS (LIGHT, SIGNALS, ETC.)

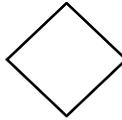
Traffic laws and signals are standard throughout the state, but traffic signs may vary depending upon the local road geography. The United States is moving toward an international style of traffic signs, which emphasizes pictures and symbols rather than written messages.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

Size, shape and color are used in specific ways and each convey a definite message.

SHAPE

An octagon (eight-sided) shape always means stop.



A diamond shape is a warning of existing or possible hazards on the roadway on adjacent areas.



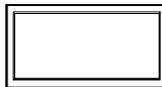
A triangle shape means to yield.



A round shape (circle) means railroad crossing.



A pentagon (five-sided) shape tells you there is a school zone or school crossing ahead.



A horizontal (rectangle) shape is a guide sign.



Vertical rectangles are generally used for regulatory signs that tell you the law – what you must do.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
	<p style="text-align: center;">YELLOW</p> <p>The yellow light means that the traffic signal is about to turn red. Stop if you can do so safely. Never try to “beat” a yellow light. Not only is it unsafe, it is against the law to be in an intersection when the light is red, even if it was yellow when you entered.</p> <p style="text-align: center;">GREEN</p> <p>If the way is clear, you may go straight or turn left or right, unless such turns are prohibited.</p> <p style="text-align: center;">FLASHING LIGHTS</p> <p>A flashing yellow light means you must slow down and watch for others. It is found at intersections, construction areas and on some emergency vehicles such as tow trucks.</p> <p style="text-align: center;">FLASHING RED LIGHTS</p> <p>Flashing red lights means that you must come to a complete stop and proceed only when the way is clear.</p> <p style="text-align: center;">TWO FLASHING RED LIGHTS</p> <p>Two flashing red lights mark a railroad crossing.</p> <p style="text-align: center;">LIGHTED ARROWS</p> <p>Some intersection traffic lights have lighted arrows in addition to the regular lights to tell you when it is your turn to proceed.</p> <p style="text-align: center;">GREEN ARROW</p> <p>A green arrow means you may proceed in the direction of the arrow provided you are in the proper lane.</p>

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>SHOW EXAMPLES</p>	<p style="text-align: center;">FLASHING YELLOW ARROW</p> <p>A flashing yellow arrow means you may proceed with caution in the direction of the arrow.</p> <p style="text-align: center;">ARROW POINTED UPWARD OR DOWNWARD</p> <p>This means you may go “straight ahead.”</p> <p>When there is more than one traffic light, obey the one that is over your lane.</p> <p style="text-align: center;"><u>TRAFFIC SIGNS AND SIGNALS</u></p> <p>Traffic signals tell you what to do.</p> <p style="text-align: center;">STOP SIGN</p> <p>A stop sign is red with white letters and has eight (8) sides. It means you must come to a complete stop in a safe position in relation to traffic, then proceed when the way is clear.</p> <p style="text-align: center;">YELLOW SIGN</p> <p>A yield sign is shaped like a triangle and is red and white. It means you should slow down and yield to traffic.</p> <p style="text-align: center;">RED SLASH INSIDE A CIRCLE</p> <p>A red slash inside a circle means you cannot do something.</p> <p>At any intersection which has a police officer directing traffic, do what the officer instructs you to do.</p> <p style="text-align: center;"><u>MIRRORS</u></p> <p>The school bus is equipped with mirrors to assist the driver in seeing all that goes on around the bus. One of the characteristics of school bus construction is that it</p>

produces blind spots and danger zones. Many of the serious incidents involving school buses occur in these areas. Mirrors have been added to the school bus to assist the driver in seeing these areas. A driver cannot safely operate a school bus without using the mirrors properly. The first and foremost action a driver must take when using the mirrors is to ensure that they are properly adjusted so that all areas can be monitored and the mirrors can be readily seen from the driver's seat. Mirrors should be positioned and adjusted so that the driver can monitor all areas without moving his/her head. Mirrors should be monitored by shifting the eyes only. Mirrors must be checked as part of the scanning process that the driver follows in reading the road.

A school bus is equipped with the following mirrors:

1. An interior rear view mirror is mounted above the windshield.
2. West coast mirrors are mounted on the left so that the driver has an unobstructed view of it through the driver's window and on the right so that the driver has a good view of the mirror through the right side of the windshield.
3. Each school bus also has four (4) convex mirrors (on older buses) – two (2) mounted on each front fender. Two (2) mirrors are positioned to give the driver a clear view in front of the bus all the way down to ground

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>DISCUSS TRIANGLES OF INVISIBILITY. BE SURE TO POINT OUT THE DANGERS.</p>	<p>to as danger zones or death zones. Drivers must have their mirrors adjusted so that they can see into these areas.</p> <p>It is virtually impossible to see small children when they are in these areas or zones. It cannot be emphasized enough that no movement of the bus is to be made until the driver has checked each zone or area for clearance.</p> <p style="text-align: center;">USE OF MIRRORS FOR BACKING</p> <p>School buses should be backed only when there is no other alternative. Back only when absolutely necessary because of the dangers involved and never on school grounds. It is better to drive around the block and alter your route to avoid backing the school bus. There will be, however, instances when this is not feasible and school bus drivers must know the proper method to back a school bus. Backing a school bus in a straight line will require extreme caution on the part of the driver.</p> <p>The driver must learn to back into a given space without scraping or hitting stationary objects. In backing a school bus with a manual transmission, the driver must:</p> <ol style="list-style-type: none"> 1. Activate the four-way flashers, prior to stopping for backing. 2. Stop the bus in correct position to back. 3. Check mirrors. 4. Assure yourself that area is clear. 5. Secure visual assistance if possible.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

6. Apply brake.
7. Depress clutch.
8. Shift to reverse.
9. Tap horn lightly.
10. Release brake.
11. Release clutch to friction point.
12. Gradually accelerate and release the clutch all of the way.
13. Steer wheel as necessary.
14. Use mirrors to monitor direction of bus.
15. Always try to back straight or to the driver's side as this provides maximum visibility.

In backing a school bus with an automatic transmission, the driver must:

1. Activate four-way flashers, prior to stopping or backing.
2. Stop bus in correct position to back.
3. Check mirrors.
4. Assure that area is clear.
5. Secure visual assistance if possible.
6. Apply brake.
7. Shift to reverse.
8. Tap horn lightly.
9. Release brake.
10. Gradually and slowly move.
11. Steer wheel as necessary.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>EXPLAIN EACH OF THESE TECHNIQUES. ASK DRIVERS TO EXPLAIN.</p>	<p>12. Use mirrors to monitor the direction of the bus.</p> <p>Several techniques for backing which the driver should use are:</p> <ol style="list-style-type: none"> 1. Physically get out and check behind the bus. 2. Use helper assistance, if possible. 3. For straight backing, hold the steering wheel in 10/2 or 9/3 position. 4. Hand-over-hand steering for either right or left backing. 5. Back slowly. 6. Keep foot completely off of the clutch pedal. 7. Use two (2) west coast mirrors. 8. Use the inside rear view mirror when possible. 9. Use two (2) fender mirrors for obstructions (not distance judgement). 10. Keep eyes moving to all five (5) mirrors. 11. If still unsure while backing, stop and check outside again.

NAME: _____ DATE: _____

**DRIVING FUNDAMENTALS
TEST*****ANSWER TRUE OR FALSE OR FILL IN THE BLANK***

1. _____ The width of a full size school bus, excluding mirrors, is how many inches?
2. _____ When performing a visual scan, a school bus driver should look ahead how many seconds?
3. _____ Parking is prohibited within thirty feet (30') of a railroad crossing.
4. _____ The most effective steering technique is push-pull.
5. _____ An oil pressure gauge indicates how much oil you have in the bus.
6. _____ Warm up an engine at fast idle.
7. _____ A diesel engine should run at least three (3) minutes before it is shut down.
8. _____ Your foot should remain over the clutch at all times when you are driving.
9. _____ The correct hand position on the steering wheel is 9 and 2.
10. _____ When approaching a railroad crossing, a school bus driver should tap the brakes a minimum of how many times?
11. _____ It is not legal to pass another vehicle on the right at any time.
12. _____ The normal reaction time for most drivers is 1/2 second.
13. _____ Parking is prohibited within intersections.
14. _____ The distance a bus must stop at a railroad crossing is not less than fifteen (15) or more than thirty feet (30').
15. _____ The only turnabout that should be performed in a Kentucky school bus is a three point turnabout.
16. _____ School bus drivers shall not turn right on red.
17. _____ An rectangular sign shape means information.

18. _____ A road sign with red slash inside a circle means that something is prohibited.
19. _____ No person shall stop a school bus within 30 feet of any flashing beacon, stop sign, or traffic control signal located at the side of the road.
20. _____ You may legally stop a school bus in front of a driveway to load or unload students.

INSTRUCTOR'S SIGNATURE: _____

**DRIVING FUNDAMENTALS
TEST
*ANSWER TRUE OR FALSE OR FILL IN THE BLANK***

ANSWER KEY

The answer key is only released to KDE endorsed trainers.