



High Performance Driver Education Beginners Guide – 101

Southeast Michigan Porsche Club of America



Welcome to Southeast Michigan Porsche Club of America - Drivers Education Events !!

This guide is intended to help ease you into the world of HPDE (High Performance Driver's Education) events and give you some information on how to prepare for a successful first day. It will cover what to do after you have registered and briefly how the day runs. We know coming out to an HPDE event for the first time can be rather intimidating. Rest assured, there are plenty of people who will help guide you and make sure this is a very enjoyable experience. Take a few moments to read this guide and re-visit it as you proceed towards the day. It is broken into the following 'steps' –

- [What you need to do before the event](#)
- [The night before Prep](#)
- [The day of the Event](#)
- [Heading home](#)
- [Miscellaneous Tips](#)
- [appendix](#)

Please do not hesitate to contact either the DE-Chair or the Chief Instructor with any further questions or concerns that you may have. Contact information can be found on the Club website SEM.PCA.ORG

One giant word of caution: this adventure can become very addictive☺. Our instructors will teach you to drive your Porsche the way Stuttgart designed it to be driven. PCA DE schools are run in a safe and controlled environment on a closed course. Like any new sport, your instructor will guide you into this exciting world of high performance driving. These track days are great sources of stories for the Monday morning coffee break. You will have dreams about various turns and wake up with memories of your instructor saying things like BRAKE or DON'T LIFT. These schools are truly the only safe way to learn the engineering dynamics that went into the development of this famous racing marque. However, it is noted that PCA DE events are not racing, nor preparation for racing. No times or placing's are recorded, and no awards or prizes are given out; just a lot of fun and camaraderie. Any conduct considered by the Porsche Club of America to be either unsafe or inconsistent with the spirit or purpose of the Driver's Education Program will not be permitted. This approach keeps the events safe for all participants!

Ok, you've registered and have been confirmed. Now what ...??

Helmet -

First off let's start with the helmet. We require **Snell SA** rated helmets (within 10 years) for anyone who is on the track. The Snell Memorial Foundation, Inc. is a not-for-profit organization dedicated to research, education, testing and development of helmet safety standards. Since its founding in 1957, Snell has been a leader in helmet safety in the United States and around the world.

The SA standard was designed for competitive auto racing while the M standard was for motorcycling and other motorsports. The K standard was released to accommodate helmets used in karting. There are three major differences between them:

1. The SA standard requires flammability test while the M and K standards do not.
2. The SA and K standards allow for a narrower visual field than the M standard (Some SA and K certified helmets may not be street legal).
3. The SA and K standards include a roll-bar multi-impact test while the M standard does not.

The rating on a helmet can be found a tag that is inside the helmet. Look inside and pull back the liner on either the back or side slightly. Look for the areas that are not glued down and can be easily lifted.



Here is an example –



This shows a helmet that has an SA-2015 rating. Snell releases new standards every 5 years. We require a rating within 10 years (an SA-2010 rated helmet can be used through 2020).

If you do not have an SA rated helmet, we have a few available that beginners may rent for a small fee. This was an option when you registered for the event but if you missed that contact the DE-Chair to access this.

We highly recommend that if you continue to attend more DE events you make this a person item and purchase one. There are several options for this and a few quick internet searches should yield result of varying prices from economical to exacting. Take into consideration the amount you will use this item and the old standard – ‘how much is your head worth?’ when you decide to buy.

Tech inspection –

To participate in one of our DE days you must have a Technical inspection done on your car within 30 days prior to the event. We have a specific check list that will highlight the items that we require checked. These are, for the most part, general maintenance items. SEM PCA provides an Inspection form that can be found on the Club website and attached to conformation email. The inspection is done to ensure the safety of the vehicle for yourself, your instructor, and other participants. It can be performed by any state licensed auto mechanic but we recommend one that is perhaps more familiar with your exact brand and vehicle. Dealerships and Independent shops that specialize in your type of car are a good place to start. Some will offer to do the inspection for no/reduced cost or sometimes have special days setup to do groups of inspections.

While it is required that this inspection be done within 30 days of the event it is a good idea to have it completed reasonably in advance. This will ensure that if any deficiencies are found, you will have time to have them corrected. Be sure to bring this completed form with you to the event. You will need to turn this in at the registration desk. If the vehicle has participated in another track event within those 30 days it must be re-inspected prior to the next event.

Note:

One item of note on the Tech inspection is the age of the brake fluid. This is a safety point of the upmost importance and should not be undermined or avoided. Brake fluid is very hygroscopic (*readily takes up or retains moisture*) which affects its ability to function properly as it ages. Under normal driving conditions, this is not as much a safety concern as it is maintenance. Much more heat is generated when driving on a track though, with frequent high speed decelerations. Any moisture in the fluid will likely boil thus becoming a gas trapped on the lines. The vapors are compressible as opposed to the fluid which is not. This compression will be the weak point of the hydraulic system that will take up pressure that is supposed to reach the brake pads. As you can imagine, No pressure on the pads = NO STOPPING. Early signs of this are a brake pedal that when applied feels 'spongy' or has more travel than normal. A good flush with the proper fluid will protect you, your instructor, and everyone else on the track from any unexpected or unwanted 'excitement'.



The night before –

No doubt at this point you will be very excited and a bit anxious about the next day. There are a few things you can do get prepared the night before.

Get your Technical Inspection form together and place it in your car !! This way you will be sure to have it at registration. You will also be required to present your driver's license at registration. Put your helmet in the car as well. It's best to have them there and ready to go. Make sure you have enough gas. There is no fuel at the track. Check oil level and top it off.

For the event, we need you to clear out all loose objects from the car. This means removing everything from the glove box, center console, and all stowage compartments in doors and under seats. Objects inside the vehicle can come loose and roll or fly around when driving with a bit more vigor than you would normally on the street. This poses a safety threat for both the driver and instructor. Floor mats and all devices such as GPS screens will need to be removed as well. You may choose to remove some of these items once you get to the track. We suggest bringing a plastic tote or container or a water proof tarp to place them in. You will be able to keep this around where you park with no troubles.

Here is a list of things you might want to consider to bring with you as well -

- Plastic bin or tote to protect your things from weather. Tarps work well too.
- Folding chair to use between sessions
- Small cooler (we provide lunch, water/soda throughout the day, but if you have specific needs)
- Sun screen, sun glasses, hat (even on a partly cloudy day you can still need this)
- Umbrella or rain outer wear (we play rain or shine)
- Paper towel / window cleaner (useful to clean windshield and check oil)
- Tire pressure gauge (your pressures may need to be adjusted at times)
- Torque wrench to check your lugs (if you don't have one, there will be plenty around)

Plan to wear appropriate clothing. The clothing you wear should keep you safe and comfortable. You will need a long-sleeved shirt and long pants (jeans work well) made of natural fibers such a cotton. These are **REQUIRED**. Footwear should be enclosed, non-slip, with a relatively smooth sole (examples such as aggressively lugged hiking shoes or boots are highly discouraged). Another good idea is to bring a change of clothes for when you aren't driving. Something comfortable and suitable for the prevailing weather.

Get a good nights sleep (good luck!!)

Avoid alcohol. Staying hydrated during a DE can already be a challenge and alcohol may worsen this.

The day is here !!

The morning of the DE is here and you have your car packed with everything you need (double check list above). Don't forget your paper work and helmet.

We ask that you get to the track between 7:30 and 8 a.m. The morning is very busy and you want to leave yourself enough time.

Once you get to the track, find a parking space and unpack your car. After, take your completed Tech inspection and driver's license to the Registration desk. Here you will sign the waivers, receive a wrist band, and get a schedule for the day. The schedule will also show your run group and list your instructor for the day. You will also receive a lunch ticket and a number sticker for your car that matches your run group number. This should be applied to your windshield in the upper center (in front of your review view mirror usually). Place it high and center where it is out of your line of sight. This allows your instructor to find your car and the corner workers to recognize you. Your instructor will have the same car number as you with a different 'color' (such as you may be G23 and your instructor will be R23-Green / Red respectively). After you have registered, your instructor will meet up with you to go over and complete the Event Inspection part of the Technical Inspection form. They will need to see your helmet so please have it handy.

A track walk is usually scheduled for 8:00 a.m. This is where an instructor will take a group for a walk around one lap of the track. They will describe the 'line' you should drive and where you should position the car. They will give you visual clues and point out important features such as flagging stations and marking cones. This is a great opportunity to see the track at 'ground level' and is very popular. Seeing it at this pace and not in a car will give you vital information that even experienced students can benefit from.

At 9:45 there is a **MANDATORY** Driver's meeting in front of the tower. During this, the Chief Instructor will introduce all the instructors for the day, cover the flags we use and their meanings, explain passing procedures for each run group, and cover any other notes for the day. Please feel free to approach any instructor during the day with any questions or concerns you may have. We strive to provide instructors that are passionate about both this sport and helping others enjoy it as much as they do.

After the drivers meeting the new students (Green group) will be invited to the classroom. The classroom is on the second floor of the tower. Up the staircase and to the left side. Here the Classroom instructor will give you further information about getting ready to go out on the track. They will cover such things as the proper seating position, go over cornering basics, and cover some basic terms you will hear frequently. This class is approximately one half hour.

Next up it's time to 'grid' your car. You will proceed to your car. Your instructor will meet you there (unless other arrangements have been previously made). While you wait, go ahead and put your helmet on and adjust your seat to proper position. The position you use to drive on a track at speed is seldom the same as you would use normally. Odds are you will be sitting closer to the wheel and deeper in the seat than you may be used to. Sitting this way will promote better sensing of what the car is doing through the controls. There is more about this in the Miscellaneous Tips section.

Your Instructor will now guide you onto the track and through your session. Listen closely to the information they will be giving you. There is a lot to learn so take it all at your own speed and don't worry too much about your pace right now. Everyone understands and everyone has a first day at the track. Relax and have fun. Remember to breath !!

When the session ends you will complete a final lap to help cool the car back down. Exit the track and proceed back to your parking spot. Remember to keep it slow when going through paddock (parking area). Your instructor may ask you to drop them off closer to the 'Grid' as they may have another student that is ready to go on the track next. Please be mindful of others exiting the track and others going up to Grid. Find a spot off to the side to stop and let them out.

Once back at your spot **DO NOT** set your parking brake. Your bakes will be hotter than normal and applying the parking brake will force your pads against the rotors. This will trap the heat between them and cause the rotors to warp. Usually shutting the car off and leaving it in gear is enough to keep it from rolling. Get out and get some water !! Hydration is vital and you will likely be surprised at how much you perspire even on a cool day.

Keep an eye on the schedule. It is your responsibility to watch the time to be in the right place at the right time. You will have more class time and more sessions on track throughout the rest of the day.



Heading home –

After the last session is complete, and all the cars have come in off the track, the event is closed. We ask that you carefully clean up your area as you pack up. Please do not leave trash, bottles, or containers behind. This track is used by many clubs for various events both driving and not. And you can just imagine how YOU would feel if something blew onto the track while YOU were at speed.

Be cautious about the speeds you drive. Obey the local traffic laws and leave the speeds at the track. You can always come back for more ☺. You may want to remove the group number from your windshield as well. This will alleviate any local officials being curious about them and stopping you for a little 'chat'.

The seating position can be returned to normal. Although you may find that you're making slight adjustments to a new 'normal position'. The way it is positioned for track driving might point to things you have not noticed before.

If you have adjusted any tire pressures during the day you may want to revisit these before you drive home.

We hope you enjoy your first High Performance Driver's Education day with the Southeast Michigan Porsche Club and want to join us again. Remember, before you can attend another DE you will have to have another Tech inspection done. Again, this inspection is done to ensure the safety of the vehicle for yourself, your instructor, and other participants. We require this as the inspection you had done prior to this first day will no longer be valid. You have put some stress on the car and we want to make sure everything is still good.

Miscellaneous Notes –

Rules for the grounds at Waterford Hills Road Racing Course –

Speed limit is 5 MPH everywhere. We are guests on these grounds, respect that fact !!

Do not use auto jacks on the asphalt in between grass parking areas. It is soft and using a jack will leave a hole and smash it down. If you need to lift your car do it on the grass with a board under it or find the few sections of concrete around. If you don't know ASK !!

There is no Fuel at the track. There are a few gas stations within a mile or two of the track. If you find that you need gas during the event you can leave in between sessions and classroom to get some and make it back easily. Be sure to let either the Chief Instructor or the DE Chair know that you are leaving.

Correct Seating Position –

The buttocks should be tucked firmly against the lower back of your seat, with your back erect and against the seat. This seating position will keep you alert and the total contact of your body with your seat will feed back valuable information to you about the road conditions your car's suspension and tires.

The distance between your steering wheel and seat should allow your arms to be comfortably bent when you hold the steering wheel. This will allow you to react quickly with full use of your arms in case of emergency evasive maneuvers, and will also be less tiring on your arms.

Your arms should be slightly bent at the elbow your hands located in the 3 and 9 'o clock position on the wheel with thumbs resting on top of the spokes. Holding your steering wheel in this fashion will allow you to sense first-hand information fed to you through your steering column into the wheel. You will find that you have more strength available while maneuvering your car. Your arms will get less tired - and in case of emergency evasive maneuvers, you will have all that extra strength to help you. Let both hands do the work! While one pulls, the other can push the wheel smoothly!

Note: never to cross your arms while steering around sharper turns.

Picking up vibrations from the brake, clutch and throttle pedals are also very important.

Use the ball of your foot on the brake pedal, with your heel off the floor so you can feel the pressure you apply. This allows you to feel when the brakes are beginning to lock up the wheels and the ABS is becoming engaged. Legs should be slightly bent when fully extended to the pedals so you don't have to stretch the legs and feet.

Smoothness is very important. Any sudden input of brake, throttle, clutch or steering will cause sudden weight transfer in your vehicle and lessen your car control. It may also start a skid or accident!

Your lap and shoulder belts should be fairly tight with just enough room to allow you to reach the dashboard controls. Seatbelts are important for several reasons. They will hold you in place and keep your body tucked into your seat for maximum feel and feedback. In case of emergency evasive maneuvers, they keep you in place behind your steering wheel, instead of having you slide around the front seat. They will keep you from hitting the steering wheel.

Early Goals to focus on –

- Seating and Steering wheel position
- Awareness and understanding of corner working stations
- Getting comfortable with flags and their meanings
- Understanding cone setup (turn-in, apex, track-out) and seeing the 'line'
- Smoothness and consistency
- Gain better appreciation of proper shifting

Some common terms –

Smooth inputs	This is possibly the most common term you will hear and arguably the most important. Your inputs (steering, braking, and throttle) all should be done in a smooth fashion. No jerking or sudden changes in inputs.
Apex	The theoretical point of a corner in which the optimal driving radius meets the inside edge of the road approximately mid-way through the turn. (depending)
Turn in	The point at which you Begin your turning maneuver.
Track out	The point at which you have completed the turn and your driving radius has brought the car to the outer edge of the road.
Threshold Braking	Using the brakes at full potential, up to (but not into) the point of ABS engagement or wheel lock up.
Center of Gravity	The point within the car where it is exactly balanced in all directions.
Weight Transfer	The transfer of weight from one side of the car to the other during a turn or front to back during acceleration or braking.

Understeer	A condition during cornering when the car's radius is greater than the intended steering input. (pushing)
Oversteer	A condition during cornering when the car's radius is smaller than the intended steering input due to rotation. (the rear feels loose)
Rotation	The purposeful act of slightly 'spinning' the car around its vertical axis.
Dead Pedal	The area immediately to the left of the clutch pedal. It is used as a rest spot for the left foot when not depressing the clutch. It is also used as a bracing point for the left foot and leg during hard cornering, to keep the body firmly in the seat.
Lift or Lifting	The action of suddenly removing your foot from the pedal. This applies to the throttle and brake. (see Smooth inputs)

Passing procedure –

Because of speed differences in both cars and drivers we allow passing to keep everyone clear and having fun. For this example we will assume Waterford Hills for the track. Passing is restricted to certain areas of the track (like the back straight at Waterford Hills). The passes must be acknowledged by both parties and the car being passed will initiate the pass. The pass is done by the driver being passed waiting until they are on the straight section of the track (not in the turn still, but with the steering wheel straight again) putting their arm out of the driver's window and reaching up over the roof of the car and pointing to the right side of the track. For our club the faster car (the one passing) will go 'off-line' at this point to pass. The car being passed should ease off the throttle a little if need be to ensure this gets done as quickly as possible. Sometimes a 150hp car will need to get around a 500hp car. This should not be a drag race. The person in the slower car is likely a faster driver or perhaps the faster car is slowing while the instructor is talking to the driver. Either way, the slower car must be faster for the rest of the lap and should not be held behind the faster car. We like to check all egos at the gate please.

Even in a short passing zone there can be multiple passes completed. There must be a clear point by for each car that is passing. The drivers arm can stay out of the window but make very clear, big motions over the top of the car for each pass. One point = one pass, once completed another point would initiate another pass.

Appendix –

- [Technical Inspection Form](#)
- [Schedule](#)
- [Track Map](#)
- [Flags and meanings](#)

High Performance Driver Education - Inspection Form



Prior to event - Tech Inspection		
Pass / Fail	Pass / Fail	Pass / Fail
<input type="checkbox"/> Last 6 digits of VIN:	<input type="checkbox"/> Tires / Wheels - Minimum tread, good condition/age	<input type="checkbox"/> Optional Harnesses * - Same restraint for driver / passenger. Secure/Proper installation consistent with Manufacture's instructions. Must be SFI or FIA 5 or 6 point systems that are Non-expired. Must be used with seats that have been manufactured with supplied routing holes for both shoulder and anti-submarine belts.
<input type="checkbox"/> Lights - All Brake lights function, Turn signals work.	<input type="checkbox"/> Wheels free of cracks, bends (true), clear from body	
<input type="checkbox"/> Glass - Windshield free of cracks, Driver / Passenger window must roll down completely. Wipers / Mirrors	<input type="checkbox"/> Wheel Bearings / Ball Joints - Proper adjustment	
<input type="checkbox"/> Battery - Properly secured. No apparent corrosion. Good practice to cover positive (+) terminal (tape or cover)	<input type="checkbox"/> No excessive looseness, Boots/Seals good condition	
<input type="checkbox"/> Seat Belts - factory installed 3-points in good shape, not frayed, check latch engage and release.	<input type="checkbox"/> Brake Pads / Lines - 50% min pad thickness, lines in good condition with no cracks, splits, or weeping.	<input type="checkbox"/> Engine - No fluid leakage, Belts in good condition, Engine and transmission mount secure.
<input type="checkbox"/> Steering - No excessive looseness in any components. No leaks. Ball joints and Tie Rods with no play.	<input type="checkbox"/> Brake Rotors - Good condition with no deep grooves, No visible cracks extending to the edge of the rotor.	<input type="checkbox"/> Roll Bar / Cages - factory or better for convertibles, must pass 'broomstick' test with helmet on.
<input type="checkbox"/> Suspension - check mounting integrity on all parts (attachment points at body/arms). No leaks -shocks	<input type="checkbox"/> Brake Fluid - clean, sufficient fluid, Must be changed within 6 months. LAST DATE CHANGED -	<input type="checkbox"/> GT3, GT2 / 911 Turbos - Metzger Engines: Coolant pipes welded/pinned.
<input type="checkbox"/> Doors - Both functional from outside / inside.	<input type="checkbox"/> Exhaust system - No leaks / secure components.	

Inspection performed at - Date: _____

Inspected by: _____
(signature): _____

Car Make / Model: _____
Year / Color: _____

THE UNDERSIGNED INDIVIDUAL(S) HEREBY CERTIFY THAT:

- 1) - This OFFICIAL TECHNICAL INSPECTION FORM (THE "FORM") submitted to the Southeast Michigan Region (the "Region") of the Porsche Club of America, in connection with the High Performance Driver Education Events, was performed on the date listed by a Porsche Mechanic or other person authorized by the Region to conduct such an inspection.
- 2) - The completed Form correctly and accurately shows the condition of the Car identified above on the date of the inspection.
- 3) - There have been NO changes in the condition of the Car since the date of the inspection that would affect the track-worthiness of the Car. The undersigned hereby agrees to defend, indemnify and hold harmless PCA, it's zones and regions, as well as the inspector, from any and all claims or demands arising directly or indirectly from any incorrect and/or inaccurate statements set forth in the Form.

I understand that the technical inspection performed on my Car and my helmet is solely for the purpose of meeting minimum standards of car preparation for the Zone's or Region's High Performance Driving Event. No warranties or guarantees are implied or expressed by the passing of the inspection performed. I acknowledge that the safe condition and operation of my Car is entirely my responsibility. I take full and sole responsibility for any vehicle problems, malfunctions, or damage that may occur in connection with the operation or performance of my Car prior to, during, or subsequent to the Event. I certify that I have no physical or mental impairments that might interfere with my safe operation of the vehicle.

Driver #1 (print/sign): _____ Date: _____

Driver #2 (print/sign): _____ Date: _____

Event Inspection
<input type="checkbox"/> Group / Driver number on car.
<input type="checkbox"/> Any technical deficiencies corrected.
<input type="checkbox"/> Interior / trunk cleared of loose items.
<input type="checkbox"/> Front and rear windows – unobstructed view.
<input type="checkbox"/> Lights Functioning: Brake and Turn L/R.
<input type="checkbox"/> Gas cap tight.
<input type="checkbox"/> Battery secure / Fluid caps tight.
<input type="checkbox"/> Tire Pressure appropriate.
<input type="checkbox"/> Wheel nut/bolts properly torqued.
<input type="checkbox"/> Wheel Centerlocks – locking devices engaged
<input type="checkbox"/> * Mandatory helmet (Snell rated - SA2010/2015
<input type="checkbox"/> * Head / Neck restraint (# harnesses are used).

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The Technical Inspection form can be found in its original for format on our website under the Drivers Education section (<http://sem.pca.org/drivers-education/>). Shown here for example only.

This form also includes a section labeled 'Event Inspection' which is completed the morning of the event by your instructor. Please have this available for them.

**Porsche Club of America - Southeast Michigan Region
Waterford Hills HPDE**

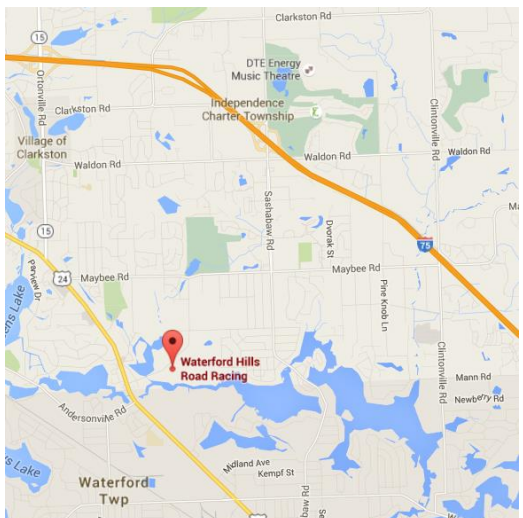
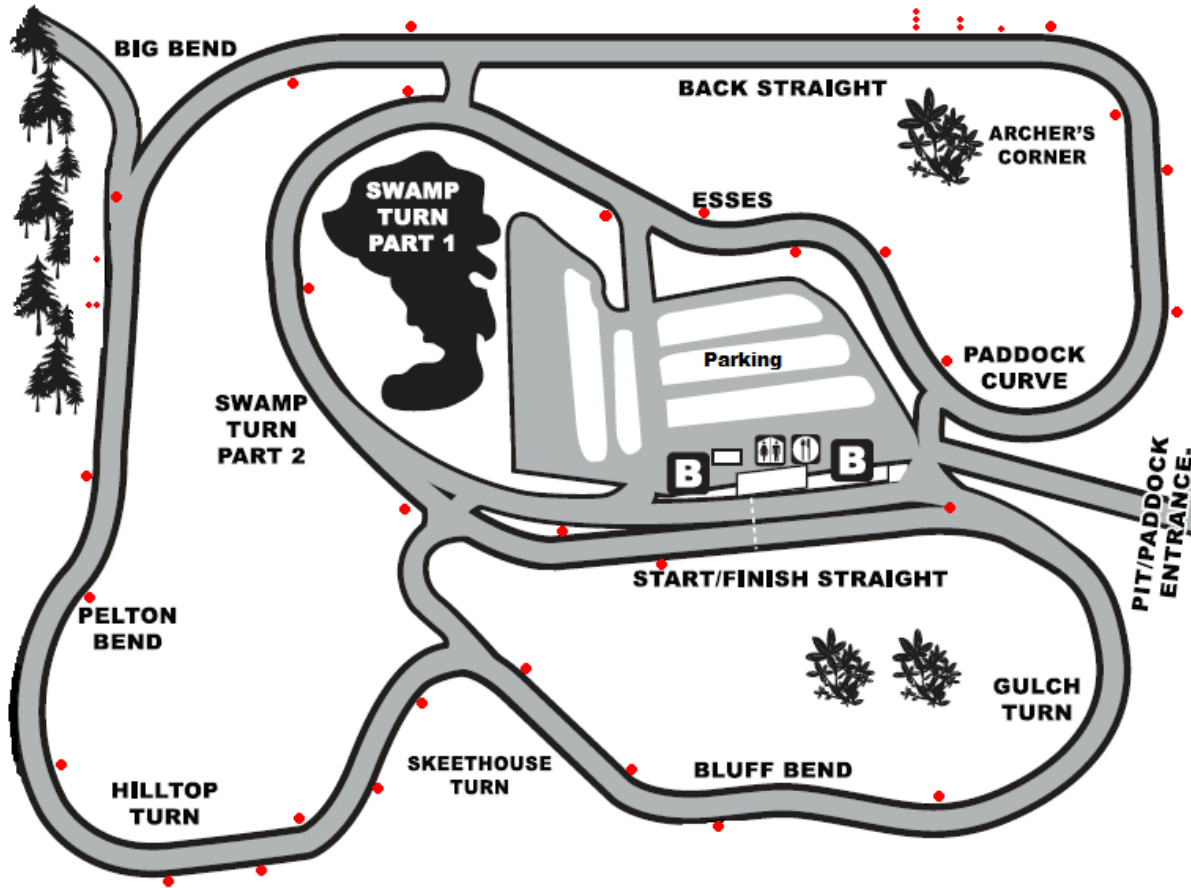
7:30	9:00	Registration / Grid Inspection - Pit Lane
8:00	8:40	Track Walk
9:30	9:40	Instructors Meeting - 2nd Floor Classroom
9:45	10:15	Mandatory Drivers Meeting - Pit Lane

*** Be sure to grid your car 5-minutes before your track time ***

		Track (Grid 5 min prior to Track time)	Class (Approx 25 min)
10:15	10:45		Green
10:30	10:50	RED	
10:50	11:10	Green	Yellow
11:10	11:30	Blue	Green
11:30	11:50	Yellow	
11:50	12:10	RED	
12:10	12:50	Lunch	
12:50	1:15	Green	Blue
1:15	1:40	Blue	Yellow
1:40	2:05	Yellow	
2:05	2:30	RED	
2:30	2:50	Green	
2:50	3:00	Corner Break	
3:00	3:20	Blue	
3:20	3:40	Yellow	
3:40	4:00	RED	
4:00	4:20	Green	
4:20	4:40	Blue	
4:40	5:00	Yellow	
5:00	--	Track Closed	

Be sure to visit us at www.SEMPCA.org

Show here is an example of a typical schedule for our DE events. Some modifications may be made to this for certain events. You will receive a schedule the morning of the event at the registration desk when you check in.



Flag	Colors	Description
	Green Flag	Track is Open and Clear
	Yellow Flag	<p><u>Stationary</u>: Be Aware Caution - Track is not clear, but there is no immediate danger to you. Slow down.</p> <p><u>Waved</u>: Immediate Caution - Track is not clear ahead. Slow down and be prepared to take evasive action.</p>
	Red Flag	Stop quickly and Safely to one side of the track. Stay in your car. Do not proceed until advised by flag crew. Your Instructor will direct you how to proceed.
	Black Flag	Pull into pits immediately. There is something wrong with your car, your driving, or you.
	Meatball Flag Orange on Black	Mechanical problem. Pull into pits and check with tech inspector or pit personal.
	Blue with Yellow Strip Flag	Passing flag. A faster car is attempting to pass you. Give him/her room.



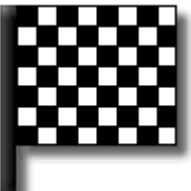
Red & Yellow Flag

Slippery track conditions (Something is on the track that has changed the traction limits).



White Flag

Caution: Emergency vehicle on track.



Checkered Flag

Run is over. Pull into the paddock.