

Road America Teen Driving School

PART 1: INTRO TO BASIC DRIVING SKILLS

BASIC TENETS OF DRIVING

- Cars do what they are told (almost always) = that is by YOU
- The driver is in control of the vehicle, and responsible if the car is out of control
- The driver needs to be in control of the speed at all times
- Be smooth with all three controls: acceleration, braking, and steering
- Keep the heel of your foot on the floor of the car
- Light grip on the steering wheel
- Look where you want to go — your hands will follow your eyes
 - Look “through” the turns
 - See everything, but don’t concentrate on anything specific
 - Look well in front of the car
- Sit deep in the seat, let it support you
 - Push pedals to the floor, slight bend in knee
 - Sit as upright as possible
 - Wrists on top of wheel; hands will follow your eyes
 - Re-set the mirrors
- Practice smooth inputs to throttle, brake, and steering
 - Apply brakes smoothly, deeply
 - Roll on throttle gradually as you exit a turn
- Hands at 9 & 3 or even 8 & 4
 - Both hands on the wheel
 - Thumbs resting on front of wheel
 - Light, relaxed grip

UNDERSTEER & OVERSTEER

- Prevent the car from sliding whenever possible
- Recognize when the car is beginning to slide
- Learn CPR – Correct, Pause, and Recover

Train yourself to recognize UNDERSTEER:

- Symptom:
 - Car turns less than you expect
 - Front tires have exceeded the grip
 - Most often happens when braking while turning
- Corrections:
 - Recognize the situation
 - Resists the urge to turn the wheel more
 - Look where you want the car to go
 - Open the steering wheel slightly, ask less of the front tires

- Be patient, as the car slows the grip will come back

Train yourself to recognize OVERSTEER:

- Symptom:
 - Car turns more than you expect
 - Rear tires have exceeded the grip
 - Often happens when going into a corner too fast
- Corrections:
 - Recognize the situation
 - Don't jump on the brakes, it only makes things worse!
 - Remember to look where you want to go, hands will follow
 - Correct, Pause, and Recover (CPR)
 - Turn into the skid or counter steer

TEEN DRIVING SKILLS

Morning Session:

- Straight Line Braking
 - Practicing threshold braking
- Braking While Turning
 - Learning that ABS allows the car to brake fully, yet turn
- Lane Change
 - Avoiding accidents

Afternoon Session:

- Skid Car
- Backing Up
- Vehicle Handling

PART 2: VEHICLE DYNAMICS & STRATEGIES

VEHICLE HANDLING

- What Is Handling?
 - Refers to how a car responds to driver input
 - Handling is a combination of a car's suspension, steering and tires
 - Better handling usually requires stiffer suspension setups
- What is Handling Balance?
 - Behavior of the car when it reaches the edge of its handling capabilities
 - Handling balance refers to which end of the car loses grip first
 - If the front loses grip first — Understeer (most cars are setup for this)
 - If the rear loses grip first — Oversteer
- Where does "Grip" come from?
 - Tire design
 - Tread pattern

- Rubber compound softness
- Sidewall stiffness
- Tire pressure
- Road surface condition

VEHICLE DYNAMICS

- The Grip or Friction “Circle”
 - It represents the grip available to your car at any moment
 - Too much of any input = the car leaves the envelope of grip and skids or slides
 - Grip is a function of tires and the surface conditions
 - There is a limit to the grip the tires can create
 - The grip is reduced based on conditions
 - If you are at 100% of any input, you cannot add any other inputs or you will lose grip and slide
- Reduce *ANY* of the inputs to less than 100% and you can add a bit of one of the other inputs e.g., braking and turning can work together and still be within the “grip” envelope
 - Hands and feet must work together
 - Straighten the wheel before you add throttle
 - Straighten the wheel for heavy braking
 - Minimal throttle or brake while turning

IMPORTANT STREET STRATEGIES

- Driving is a mental skill, rather than a physical skill
- Maintain situational awareness and visual scanning around you
- Mirrors only hint at your surroundings, a head turn to look is what counts
- Assume everyone else does not know what they are doing
- When the light turns green, check both directions before accelerating
- Be predictable by signaling your intentions
- If your wipers are on, turn on your headlights
- The left lane is the passing lane, not the fast lane
- Don't drive angry or tired
- Watch for cars changing lanes or multiple lane changes
- Always allow aggressive drivers to pass you

PART 3: VEHICLE MAINTENANCE

- Know your vehicle inside and out
- Pre-drive check list
- ABS knowledge
- Changing a flat
- Jump start a car

YOUR VEHICLE

- What year, make and model is your car?

- What drivetrain do you have?
 - FWD, RWD, or AWD
- Is your car road worthy?
 - Any known problems? Odd noises?
- Who is your mechanic?
 - You, your parents, dealership, independent mechanic?
- Has your car been recalled?

INTERIOR KNOWLEDGE

- Glove box essentials
 - Owner's manual
 - Vehicle registration
 - Proof of insurance
 - Tire pressure gauge
 - Other essentials?
- Headlights (auto/manual), brights, and running lights
- Windshield wipers
- Cruise control
- Locking system
- Spare keys

ADVANCED CAPABILITIES

- Adaptive cruise control
- Blind spot monitoring
- Lane assist
- Automatic braking
- Parking sensors
- Warning lights meaning
 - Indicator light (white/blue/green)
 - Advisory light (yellow/orange)
 - Warning light (red)
- Flashing red — STOP immediately

BEFORE YOU DRIVE

- Adjust the seat
- Put your seat belt on
- Adjust the outside mirrors and rear-view mirror
- Clear all windows of snow or ice
- Ensure headlights and taillights are visible
- Wait for any fog/frost to clear from windows
- Take it easy until the engine is warm

Additional Safety Checks:

- Occasionally check lights are functioning correctly
- Fast turn signal means a bulb is out
- Check tire pressures once a month or with extreme temperature change

- Make sure you have current proof of insurance and vehicle registration
- Have a cell phone with you
- Keep up on basic functions, features, fuse locations, etc.

Simple Maintenance Checks:

- Tires
 - Pressure, tread depth, and wear
- Brake pad thickness
- Suspension
- Engine oil level
- Coolant level & color
- Brake fluid level
- Washer fluid level
- Air filters
- Engine, cabin
- Wiper blades
- Lights

Other Maintenance:

- Change your oil
 - See schedule in owner's manual
- Oil Life Monitoring System
 - 3 month/3,000 miles
- Rotate the tires
 - See schedule in owner's manual
- Look for fluid where you park
 - Does the fluid have a color?
 - What does the fluid feel like?
 - What does the fluid smell like?
- Vehicle fuse panel location (spares)
- Check battery voltage & age
- Know how to reset tire pressure monitoring system
- Practice changing a tire and jump starting a car at home