



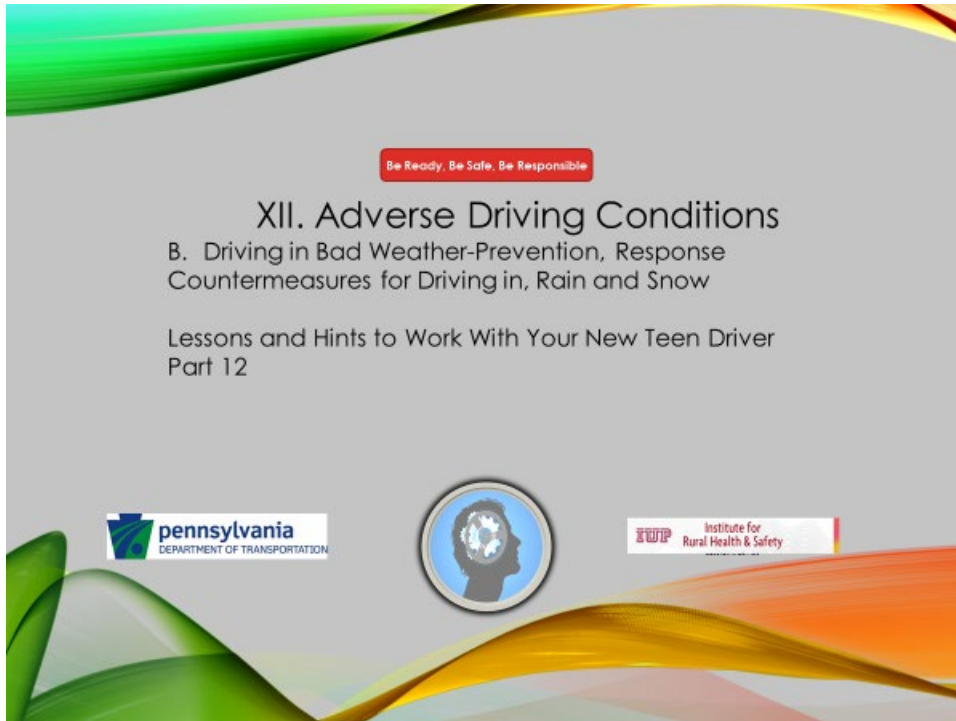
Be Ready, Be Safe, Be Responsible

## XII. Adverse Driving Conditions

### B. Driving in Bad Weather-Prevention, Response Countermeasures for Driving in, Rain and Snow

Lessons and Hints to Work With Your New Teen Driver  
Part 12





The infographic has a blue and white background with a road scene. At the top, it says "DANGEROUS CONDITIONS" in bold, with "Countermeasures for Driving in, Rain and Snow" underneath. A list of countermeasures is provided in a white box with a blue border. At the bottom, a red box contains the text "Be Ready, Be Safe, Be Responsible".

**DANGEROUS CONDITIONS**  
Countermeasures for Driving in, Rain and Snow

- **Reduce speed** according to visibility and road conditions, but **do not stop** in travel lane or on shoulder near road
  - For blizzard or white-out conditions, look for exit from highway and turn on radio for weather report.
  - If impossible to leave highway, stop beyond end outside of guardrail.
- **Turn headlights to low beams**
- Turn on emergency flashers

Be Ready, Be Safe, Be Responsible

## Dangerous Conditions

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**SKIDS**

Skidding is the lack steering, braking, and acceleration control due to the loss of traction /rolling friction between the tires and road surface.

Roadway and Weather Conditions

- Ice-black ice, glare ice, freezing rain, sleet
- Snow- blizzard, squalls, blowing snow
- Slush
- Water\*-rain, flooding, ponding = Hydroplaning
- Oil
- Mud
- Wet leaves
- Sand, gravel, anti-skid material on dry roads.

When combined with:

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## Driver Error

Driving too fast for conditions

Sudden steering

Sudden braking

Sudden accelerations

**Driver Error + Road Conditions = SKIDS**

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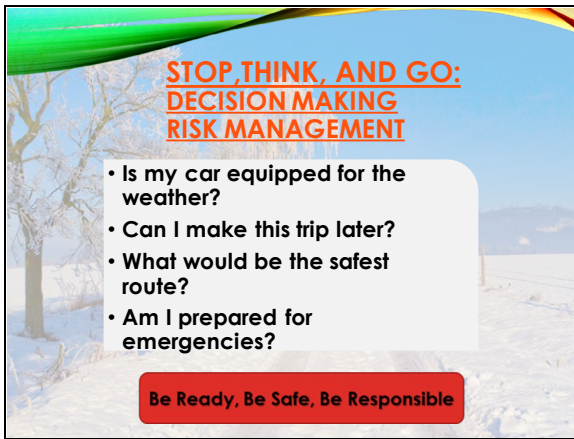
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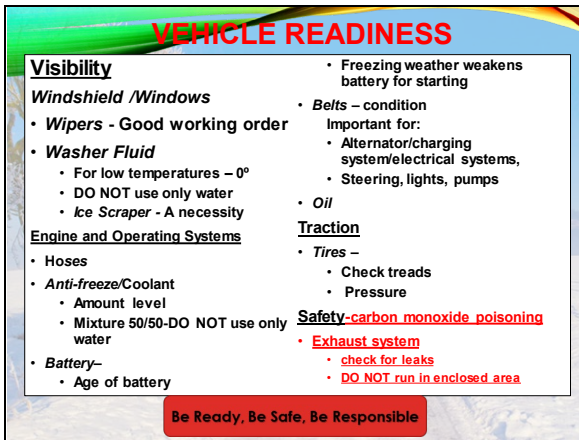




## Dangerous Conditions Countermeasures for Driving in Rain and Snow WINTER



Stop, Think, and Go:  
Decision Making  
RISK MANAGEMENT  
Is my car equipped for the weather?  
Can I make this trip later?  
What would be the safest route?  
Am I prepared for emergencies?



## Vehicle Readiness

### Visibility

#### Windshield /Windows

- *Wipers* - Good working order
- *Washer Fluid*
  - For low temperatures – 0°
  - DO NOT use only water
  - *Ice Scraper* - A necessity

#### Engine and Operating Systems

- Hoses
- *Anti-freeze/Coolant*
  - Amount level
  - Mixture 50/50-DO NOT use only water

- **Battery**–
  - Age of battery
  - Freezing weather weakens battery for starting
- **Belts** – condition  
Important for:
  - Alternator/charging system/electrical systems,
  - Steering, lights, pumps

• **Oil**

Traction

- **Tires** –
  - Check treads
  - Pressure

Safety-carbon monoxide poisoning

- Exhaust system
  - check for leaks
  - DO NOT run in enclosed area



WINTER CAR KIT

- SNOW BRUSH W/ SCRAPER
- FLASHLIGHT W/ BATTERIES
- BLANKET
- EXTRA WINTER CLOTHING
- SNACK BARS, WATER
- SMALL SHOVEL
- SACK OF SAND OR KITTY LITTER
- JUMPER CABLES
- FLARES OR REFLECTORS
- WINDSHIELD WASHER FLUID

**CLEAN-OFF**

**CLEAN OFF VEHICLE COMPLETELY!**

- CLEAN ALL LIGHTS
- SCRAPE ALL WINDOWS AND MIRRORS
- SWEEP ALL THE SNOW/ ICE OFF THE VEHICLE\*

**\*REQUIRED BY PA LAW**

**Good all-around visibility is important!!!!**

**Be Ready, Be Safe, Be Responsible**

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**WARM-UP**

Warm up –

- Do not race the engine
- Do not idle for a very long time
- DO NOT idle in garage or enclosed area because of:

**CARBON MONOXIDE**

**Attributes/Effects**

1. Odorless & Colorless
2. Nausea, Headache, Dizziness
3. Causes Drowsiness
4. **CAN BE FATAL**

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**WINTER DRIVING TECHNIQUES**

**Reduced speed**

- Increases ability to recognize and avoid the hazard quickly enough by:
  - Gently steering
  - Decelerating
  - Gently braking or stopping

**Turn signals sooner.**

- Gives other drivers more time to react.

**TAP your brakes**

- Warns of intention to stop.

**Increase following distance from the vehicle ahead.**

**Be aware of space from vehicles following you**

**Be Ready, Be Safe, Be Responsible**

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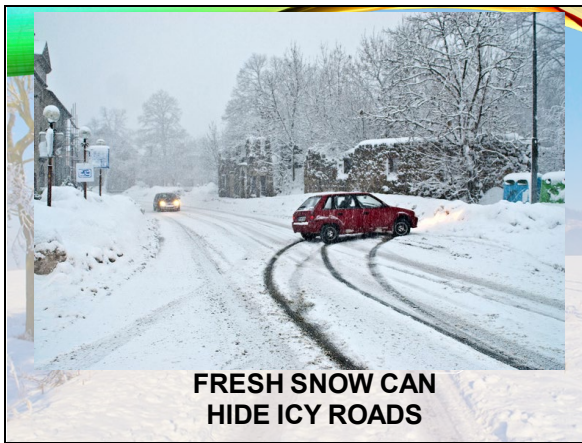
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**BLACK ICE**

**DANGEROUS BECAUSE YOU CAN'T SEE IT!**

**COMMON AREAS YOU FIND IT:**

- Bridges/Overpasses/Underpasses
- Shaded areas.

**BLACK ICE**

**DANGEROUS BECAUSE YOU CAN'T SEE IT!** Sometime looks like wet road

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- Shaded areas.



Black ice

**Black ice tricks drivers. Its shine fools them into thinking it's water on the road. This shiny ice surface is one of the most slippery road conditions. Condensation, such as dew, freezes when temperatures reach 32 degrees or below. This forms an extra-thin layer of ice on the road. Black ice is likely to form first under bridges and overpasses, in shady spots and at intersections.**

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**REACTION BLACKICE**

- **DO NOT PANIC!**
- **MAKE NO SUDDEN CHANGES IN SPEED OR DIRECTION**
- **EASE OFF ACCELERATOR**
- **STEER IN DIRECTION THAT THE REAR OF THE VEHICLE IS SKIDDING**

Be Ready, Be Safe, Be Responsible

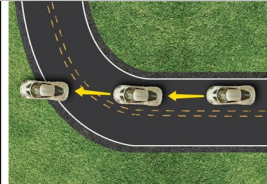
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**SKID RESPONSE**

If you begin to skid, take the following actions:

- 1. Front end skids/Understeer** - Release the brake and let the front wheels roll freely to regain traction and steering control.

A diagram showing a car on a road curve. The car is positioned in the center of the lane, and a yellow arrow points from the front of the car towards the center of the curve, indicating the direction of the skid. The road is shown with dashed lines for the lane boundaries.

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**SKID RESPONSE**

**2. Rear end skids / Oversteer-**  
 Take foot off the accelerator and turn wheels in the direction that the rear of the vehicle is skidding.



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**SKID RESPONSE**

Recognize that you are in a skid.

- Detect when the front of your vehicle changes from your intended path.

Respond by:

- Releasing the brake or accelerator
- Look and steer where you want the vehicle to go! (open, safe path of travel)



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**SKID RESPONSE**

**Counter-steering**

Counter-steering means steering in the direction you want the front of the vehicle to go, toward your intended path of travel.

When you counter-steer, straighten the wheels as soon as you feel the rear of the vehicle begin to realign with your intended path of travel.



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### BRAKING RESPONSE

What is ABS?

- Each wheel is individually monitored by computer,
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- Allows for steering and full braking

### What is ABS?

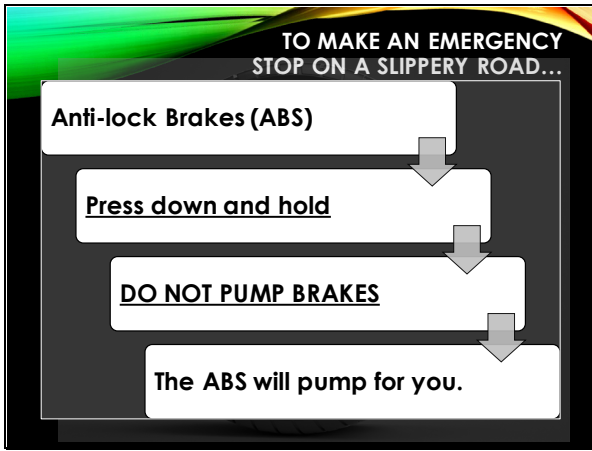
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### WHAT ABS DOESN'T DO

- It DOESN'T shorten reaction distance or braking distance.
- It DOESN'T defy the laws of physics.
- It DOESN'T improve action time.
- It DOESN'T change the driver's response to recover from a skid.

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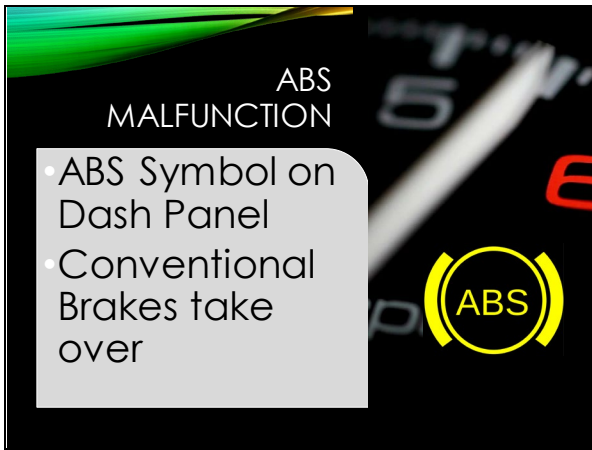
To make an emergency stop on a slippery road...

Anti-lock Brakes (ABS)

Press down and hold

DO NOT PUMP BRAKES

The ABS will pump for you.



ABS Malfunction

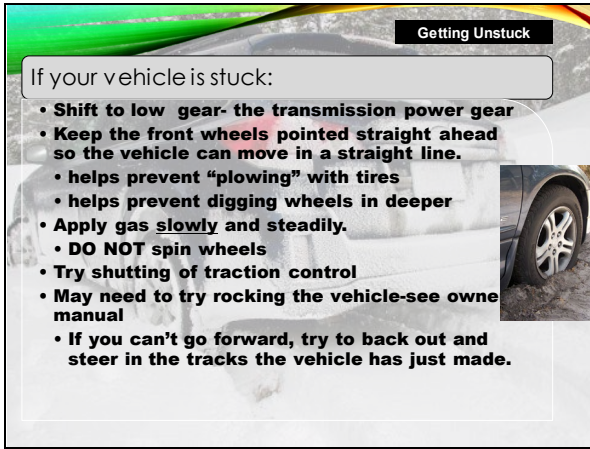
ABS Symbol on Dash Panel

Conventional Brakes take over.



To make an emergency stop on a slippery road...

Regular Brakes Pump the Brake Pedal.

A photograph of a car partially buried in snow. A text box is overlaid on the image, containing instructions for getting unstuck. The text box has a title 'Getting Unstuck' and a sub-header 'If your vehicle is stuck:'.

**Getting Unstuck**

If your vehicle is stuck:

- Shift to low gear- the transmission power gear
- Keep the front wheels pointed straight ahead so the vehicle can move in a straight line.
  - helps prevent “plowing” with tires
  - helps prevent digging wheels in deeper
- Apply gas slowly and steadily.
- DO NOT spin wheels
- Try shutting of traction control
- May need to try rocking the vehicle-see owne manual
  - If you can't go forward, try to back out and steer in the tracks the vehicle has just made.

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A photograph of a car hydroplaning on a wet road. The car is sliding, and water is being kicked up around it. A text overlay is present in the bottom left corner.

**RAIN HAZARDS**

Hydroplaning-a vehicle sliding uncontrollably on a wet road

## Rain Hazards

Hydroplaning-a vehicle sliding uncontrollably on a wet road



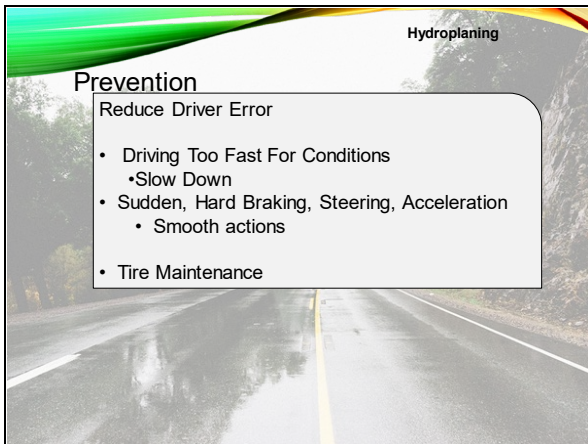


## Hydroplaning

### Caused by:

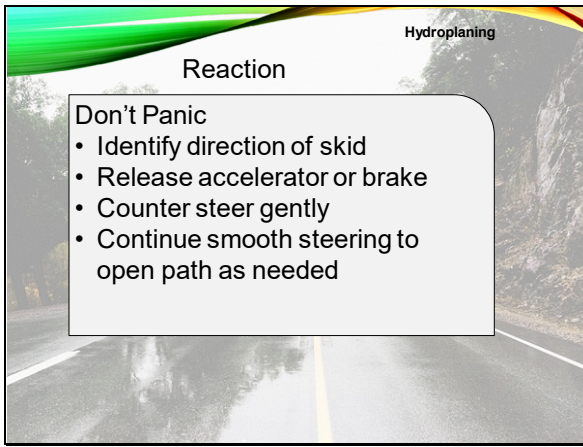
- Wet conditions
  - water on the road
  - excessive speed
  - under-inflated tires
  - low tire tread
  - any combination of the above
- =tires lose contact with the roadway and lose traction.

1/10<sup>th</sup> inch of water speeds 35 mph and above



## Reduce Driver Error

- Driving Too Fast For Conditions
  - Slow Down
- Sudden, Hard Braking, Steering, Acceleration
  - Smooth actions
- Tire Maintenance



## Hydroplaning

### Reaction

#### Don't Panic

- Identify direction of skid
- Release accelerator or brake
- Counter steer gently
- Continue smooth steering to open path as needed

It is how you, the Driver, do the math that is

## Next: Dealing with Vehicle Failure Emergencies