



#10454

DRIVER'S EDUCATION: PART 5--DRIVING WITH NATURAL FORCES

DEAF SUCCESS PRODUCTIONS, 2004
GRADE LEVEL: 9-12
15 MINUTES

DESCRIPTION

An ASL narrator discusses some of the physical laws of nature that affect safe driving. Covers such laws as load, banked curves, air in tires, force of impact, friction, center of gravity, and others. Examples illustrate some of the laws presented. Voiced in English.

ACADEMIC STANDARDS

Subject Area: Health

- Standard: Knows essential concepts and practices concerning injury prevention and safety.
 - Benchmark: Knows injury prevention strategies for community health (e.g., neighborhood safety, traffic safety, safe driving).

Subject Area: Self-Regulation

- Standard: Considers risks.
 - Benchmark: Knows potential safety hazards, and knows common strategies to avoid hazard or injury.
 - Benchmark: Knows emergency and safety procedures before undertaking hazardous procedures.

INSTRUCTIONAL GOALS

1. To discuss how to become a skilled driver in spite of "natural forces."
2. To recognize that accidents can be avoided by being cautiously alert.
3. To analyze the following regarding their safety and potential danger:
 - a. Load.
 - b. Tire inflation.
 - c. Perception time.
 - d. Perception distance.
 - e. Total stopping distance.
 - f. Force of impact.
 - g. Friction.
 - h. Energy of motion.
 - i. Center of gravity.

BEFORE SHOWING

There are physical laws affecting the operation of a motor vehicle. Safe vehicle operation requires knowledge of these. For example, a sports utility vehicle (SUV) or an all terrain vehicle (ATV) have a

C a p t i o n e d M e d i a P r o g r a m

high center of gravity and can be unstable on the road. The chief hazard occurs when taking emergency action after steering in one direction and then being forced to rapidly connect to the opposite direction.

1. What are the natural forces affecting driving?
2. How do you cope with these forces?

AFTER SHOWING

Discussion Items and Questions

1. Discuss the significance of these terms (as presented in the captioned media):
 - a. Load.
 - b. Tire inflation.
 - c. Perception time.
 - d. Perception distance.
 - e. Total stopping distance.
 - f. Force of impact.
 - g. Friction.
 - h. Energy of motion.
 - i. Center of gravity.
2. Why is a heavy load in any vehicle dangerous?
3. What is a banked curve?
4. Explain three different kinds of tire inflation:
 - a. Proper inflation.
 - b. Overinflation.
 - c. Underinflation.
5. Discuss stopping distance:
 - a. 25 mph _____ 15 ft.
 - b. 35 mph _____ 25 ft.
 - c. 45 mph _____ 35 ft.

Applications and Activities

1. Crashes on curves that kill people result from excessive speed, often when rain or snow has made the road slippery. Research and explain why. Include research of "frictional resistance."
2. Research and report on braking performance. What are the differences in this performance by autos, minivans, cargo vans, SUVs, and pickups? Which are the safest? Most dangerous? Why?

RELATED RESOURCES

Captioned Media Program

- [*Citizens' Guide To Safe Driving #7914*](#)
- [*Driver's Education: Part 9—Collision Prevention #10458*](#)
- [*Driver's Education: Part 13—Vehicle Emergencies #10449*](#)

To view more titles in the *Driver's Education* series and other related media, please connect to our Web site at <http://www.cfv.org/browsetitles.asp?sn=98>.

World Wide Web



The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and “kid safe” sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **PROPER TIRE INFLATION**

<http://www.betiresmart.ca/inflation/proper.asp?loc1=inflation&loc2=proper>

Proper tire pressure is critical for safe driving and fuel efficiency, but many passenger and light truck vehicles operate with under- or overinflated tires. Tire inflation also has a strong impact on tread life.



- **TOTAL STOPPING DISTANCE**

http://library.thinkquest.org/4116/Trip_Planning/safety.htm

The time to stop a car safely depends on the speed the car is moving when we want to stop. Once the brake has been depressed, it takes additional time before the car comes to a complete and safe stop.