



Earth Gauge

A National Environmental Education Foundation Program

## Lightning Safety Week

**June 22-28, 2008 is Lightning Safety Week.** The National Weather Service theme for the week is *When Thunder Roars, Go Indoors!* Spring 2008 has been a very active severe weather season across the country. From January through June 15, 2008, eight people in the United States have died from lightning strikes, and even more have been injured. Included below are truths about common lightning myths and tips for staying safe from lightning.

### LIGHTNING MYTHS REVEALED

Many myths or “urban legends” exist about lightning. To help your viewers understand the truth about lightning, here are a few common myths revealed.



**Myth:** Lightning never strikes the same place twice.

**Truth:** Lightning *can* and *does* strike the same place more than once. Lightning is attracted to tall, isolated objects and is particularly conductive through metal and water. The Empire State Building was once used as a lightning laboratory because it is struck by lightning an average of nearly 25 times each year! Once the electrical charge between the cloud base and an object on the ground is strong enough, an electrical channel of ionized gas (plasma) forms in the air between them, through which the electricity in the cloud is discharged. Numerous bolts of electricity can travel through this channel – the first is called a “leader.”

**Myth:** There is no danger from lightning if it is not raining.

**Truth:** Lightning is a serious threat during thunderstorms, and can strike up to 10 miles outside any rainfall. It frequently strikes more than three miles from the thunderstorm, where there may be no rain or storm clouds. This phenomenon is typical in the western United States, where thunderstorms occur more frequently without rain. In addition, infrequent strikes referred to as “bolts from the blue” can strike 10 to 15 miles from the storm. Cloud-to-ground lightning produced by anvil clouds can strike over 50 miles away from the cloud in specific extreme conditions.



**Myth:** Rubber Tires Protect You from Lightning in a Car by Insulating You From The Ground



**Truth:** A bolt of lightning can reach a temperature of nearly 50,000 degrees Fahrenheit in less than a second! This is no match for rubber in car tires (or sneakers). The metal frame of a car – its metal sides *and* roof – are what keeps you safe inside a car. A “safe car” is one with a complete metal frame, through which electricity can travel on its way to the ground. A convertible, motorcycle, bicycle, and vehicles with open, plastic, or fiberglass shells or an open cockpit offer no protection. A person is safer in a “safe car” that outside, as long as he or she is not touching metal while in the car.

**Myth:** Heat lightning is lightning produced without a sound.

**Truth:** “Heat lightning” is the common term for cloud-to-ground lightning that strikes too far away for the accompanying sound of thunder to be heard. Thunder is a shock wave produced during the rapid heating and cooling of air during a lightning strike. Lightning and thunder occur during all thunderstorms. To determine how many miles away a lightning bolt crashes, count the number of seconds between the flash and the next clap of thunder, and divide this number by five.

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## LIGHTNING RISKS

Summer is the peak season for lightning, but it can strike any time of the year. According to the National Weather Service, an average of 62 people in the United States are killed each year by lightning. Of the 45 people who were killed by lightning in the United States by lightning in 2007:

- 98 percent were outside;
- 89 percent were male;
- 30 percent were males between the ages of 20-25;
- 25 percent were standing under a tree;
- 25 percent occurred on or near the water.



Lightning victims in the United States have been struck while: boating, standing under a tree, riding a horse, swimming, riding on a lawnmower, playing soccer, golfing, talking on a phone, bike riding, loading a truck, and mountain climbing.

In addition to fatality, lightning strikes can also cause health problems such as “memory loss, attention deficits, sleep disorders, numbness, dizziness, joint stiffness, irritability, fatigue, weakness, muscle spasms, depression, and an inability to sit for long.”

## LIGHTNING SAFETY: OUTDOORS

When stuck outdoors during a thunderstorm, you should always assume that you are in danger of being struck. Taking proper precautions, however, can significantly reduce your risk. If you are outside when you start to hear thunder, you should head for a **safe** shelter immediately. No shelter is completely safe from lightning, but some shelters are safer than others:

**Best Shelter Choice:** An enclosed building with a roof, electricity, and plumbing.

**Worst Shelter Choices:** Carports, unenclosed garages, picnic shelters, covered patios, tents, dugouts, greenhouses, and sheds – any unenclosed building without electricity or plumbing is not safe.

**Vehicles:** If you cannot get to a safe shelter, a “safe car” is your next best option. Avoid driving during a thunderstorm. When “riding out” a thunderstorm in a vehicle, avoid contact with metal and use of HAM radios and similar devices.

**Other Options:** If you cannot find other shelter, you can wait out a storm underneath a freeway overpass, a bridge, directly under high tension electrical lines, or 50-feet away from the metal towers that hold up these electrical lines. Remember that these shelters are only slightly better than being out in the open.

If you absolutely cannot find shelter during a thunderstorm, you should squat out in the open in a low-lying area on the tips of your toes in a “crouch” position, away from other members of your group. Do not lie down.

If you are outside, do not:

- seek shelter under a tall, isolated tree.
- seek shelter under a partially enclosed structure.
- touch metal objects like fences. Stay as far away from metal as possible.

If you are outside, watch for signs of approaching storms and listen for thunder. Protect yourself from lightning by remembering the *30/30 rule*: if you are outside, seek shelter if the “flash-to-bang” delay (the time between lightning and thunder) is less than 30 seconds, and stay inside until at least 30 minutes after the storm is over. Inside, try to stay away from windows and doors during the storm. Remember that pets are vulnerable to lightning strikes too - dog houses are not lightning-safe.

## LIGHTNING SAFETY: INDOORS

Enclosed buildings with electricity and plumbing are the safest places to be during a thunderstorm. If lightning comes close to or actually strikes these buildings, the current is likely to travel through the pipes and electrical wiring, and will eventually flow into the ground. Avoiding contact with the route the current is taking is the key to safely waiting out a thunderstorm while you are indoors.

- Avoid talking on corded phones.
- Avoid contact with electrical equipment. Unplugging things like personal computers and stereo equipment just before the storm can prevent damage to these items if lightning does affect your home’s electrical wiring.
- Avoid contact with plumbing. Do not wash your hands or do things like dishes or the laundry.
- Stay away from windows and doors. Do not sit on your porch or patio, even if they are covered.
- Avoid contact with concrete. Concrete is usually reinforced with steel, which conducts electricity.

For more information about **Lightning Safety Week** and thunderstorm preparedness, visit [www.lightningsafety.noaa.gov/week.htm](http://www.lightningsafety.noaa.gov/week.htm) or [www.weather.gov/om/brochures/ttl.pdf](http://www.weather.gov/om/brochures/ttl.pdf)