

Lightning is fascinating to watch but also extremely dangerous. In the U.S., there are about 25 million lightning flashes every year. Each of those 25 million flashes is a potential killer.

While lightning fatalities have decreased over the past 30 years, lightning continues to be one of the top three storm-related killers in the U.S. In addition, lightning injures many more people than it kills and leaves some victims with life-long health problems.

How hot is lightning? It depends what the lightning is passing through. As lightning passes through air, it can heat the air to 50,000 degrees, about five times hotter than the surface of the sun.

Understanding the dangers of lightning is important so that you can get to a safe place when thunderstorms threaten. If you hear thunder, you are already in danger of becoming a victim.

### How Storms Develop

All thunderstorms go through stages of growth, development, electrification, and dissipation. Thunderstorms often begin to develop early in the day when the sun heats the air near the ground and pockets of warmer air start to rise in the atmosphere. When these pockets of air reach a certain level in the atmosphere, cumulus clouds start to form.

Continued heating causes these clouds to grow vertically into the atmosphere. These "towering cumulus" clouds may be one of the first signs of a developing thunderstorm. The final stage of development occurs as the top of the cloud becomes anvil-shaped.

As a thunderstorm cloud grows, precipitation forms within the cloud. A well-developed thunderstorm cloud contains mostly small ice crystals in the upper levels of the cloud, a mixture of small ice crystals and small hail in the middle levels of the cloud, and a mixture of rain and melting hail in the lower levels of the cloud.

Air movements and collisions between the various types of precipitation in the middle of the cloud cause the precipitation particles to become charged. The lighter ice crystals become positively charged and are carried upward into the upper part of the storm by rising air.

The heavier hail becomes negatively charged and is either suspended by the rising air or falls toward the lower part of the storm. These collisions and air movements cause the top of the thunderstorm cloud to become positively charged and the middle and lower part of the storm to become negatively charged.

In addition, a small positive charge develops near the bottom of the thunderstorm cloud. The negative charge in the middle of thunderstorm cloud causes the ground underneath to become positively charged, and the positively charged anvil causes the ground under the anvil to become negatively charged.

Lightning is a giant spark of electricity in the atmosphere or between the atmosphere and the ground. Lightning can occur between opposite charges within the thunderstorm cloud (Intra Cloud Lightning) or between opposite charges in the cloud and on the ground (Cloud-To-Ground Lightning). Cloud-to-ground lightning is divided two different types of flashes depending on the charge in the cloud where the lightning originates.

How far away was that lightning? The sound of thunder travels about a mile every 5 seconds. If you count the seconds between the flash of lightning and the crack of thunder and divided by 5, you get the number of miles away from you (10 seconds is 2 miles).

### Lightning Safety

There is no safe place outside when thunderstorms are in the area. If you hear thunder, you are likely within striking distance of the storm. Just remember, When Thunder Roars, Go

### Indoors!

A safe shelter from lightning is either a substantial building or a enclosed metal vehicle. A safe building is one that is fully enclosed with a roof, walls and floor, and has plumbing or wiring. Examples include a home, school, church, hotel, office building or shopping center.

Once inside, stay away from showers, sinks, bath tubs, and electronic equipment such as stoves, radios, phones and computers.

Unsafe buildings include car ports, open garages, covered patios, picnic shelters, beach pavilions, golf shelters, tents of any kinds, baseball dugouts, sheds and greenhouses.

A safe vehicle is any fully enclosed metal-topped vehicle such as a hard-topped car, minivan, bus, truck, etc. While inside a safe vehicle, do not use electronic devices. If you drive into a thunderstorm, slow down and use extra caution. If possible, pull off the road into a safe area. Do not leave the vehicle during a thunderstorm. Unsafe vehicles include golf carts, convertibles, motorcycles, or any open cab vehicle.