



# Lightning

*...what you should know and best practices to stay safe!*

Lightning occurs with all thunderstorms and is what defines a thunderstorm. Over the course of one year, the earth will be struck by lightning nearly 20 million times. Every year an average 58 people are killed by lightning strikes which is more than those killed by tornadoes. Unfortunately this number is likely lower than the actual numbers of lightning deaths per year. The Carolinas face dangers from lightning throughout spring and summer. To avoid becoming a lightning statistic just remember that, when thunder roars, go indoors.

## What causes lightning and thunder?

Lightning results from the buildup and discharge of electrical energy between positively and negatively charged ice particles within the storm cloud. A thunderstorm generates a huge static electrical charge as ice particles inside the storm collide and through friction generate a static charge. These particles of suspended ice in the thunderstorm collide as they are carried around by the storm's updraft and downdraft. Once the static electrical charge is strong enough to travel from the cloud to the ground, a lightning bolt is created.

It should be noted that the National Weather Service does not issue warnings for lightning and given the deadly nature of lightning, you should always be aware of the lightning danger anytime a thunderstorm is nearby. A good rule of thumb to live by is:

***When Thunder Roars, Go Indoors.***



A lightning bolt contains as much current as three hundred thousand amperes and around three hundred million volts. The intense electrical current heats the air around the lightning strike instantly to 50,000 degrees. This is five times hotter than the surface of the sun. The instantaneous heating of air around the lightning strike causes the air molecules to explosively expand. This expansion occurs so rapidly it compresses the air forming a shock wave similar to a sonic boom. The shock wave travels through the atmosphere, resulting in thunder. The acoustic shockwave near the lightning strike is strong enough to rupture the eardrums of those standing nearby.

Since light travels faster than sound, you can use thunder to gauge the distance of a lightning strike. You merely count the number of seconds between the moment you see the flash of lightning and hear the clap of thunder. Once you see lightning...start counting seconds. For every 5 seconds that go by before you hear the clap of thunder...that's one mile. Keep in mind this technique only tells you how far away that one lightning strike was from your location. The next one could be a lot closer. Lightning can travel 10 to 12 miles from a thunderstorm. This is often farther than the sound of thunder travels. That means that if you can hear thunder you are close enough to a storm to be in danger of being struck by lightning. When thunder roars go indoors.

## Safety Tips



- Know your sources for up-to-date weather information.
  - NOAA Weather Radio
  - National Weather Service website ([www.weather.gov](http://www.weather.gov))
  - Local TV broadcast
- If caught outdoors:
  - Seek shelter immediately in the closest building or vehicle when you first hear thunder, or see lightning.
  - Stay inside for at least 30 minutes after the last sound of thunder.
  - Do NOT take shelter under trees.
  - Avoid contact with golf clubs, bicycles, farm equipment, etc.
- If you are at the beach or lake:
  - If there are no shelters nearby, seek shelter immediately in your car.
  - Stay away from the water.
- If you are in a building:
  - Avoid contact with any electrical equipment.
  - Unplug appliances, including computers.
  - Stay away from windows.



For more safety and preparedness information, as well as what you should do after the storm, follow the following links from Ready.gov - <http://www.ready.gov/>

Thunderstorms and Lightning: <http://www.ready.gov/thunderstorms-lightning>