

# Be Lightning Wise!



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Edited by: [Bill Nelson](#), Unit Commissioner, Tempe District,  
Grand Canyon Council, Boy Scouts of America

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*As the Summer and Monsoon seasons approach, all of us who love the outdoors need to be reminded that lightning injuries are the most common of weather-related accidents. This was brought home to me in a special way just last Summer. My 17 year old, J.B., used his training as an Eagle Scout to probably save his own life. He was working at a grocery store when a storm was blowing up. He went out to roll up his truck windows, and as he closed his truck door he caught a view of his reflection in the window of the truck. At that instant, what he saw was his hair standing on end, waving about. He recognized that this meant that he was statically charged and could be struck by lightning at any time. He immediately crouched down by the front tire of his truck, and immediately there was a loud crash of thunder and a blinding flash, as a lightning bolt hit less than 50 yards away. He could hardly hear anything for several minutes, but was not injured. Hearing his story made my own hair stand on end!*

*Contributed by: Don E. Robinson M.D.; Assistant Scoutmaster Troop 10  
Cherokee Area Council, (TN-GA), Cleveland, TN.*

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# Lightning Safety Rules and Tips

## Before Lightning Strikes...

- Keep an eye on the sky. Look for darkening skies, flashes of light, or increasing wind. Listen for the sound of thunder.
- If you can hear thunder, you are close enough to the storm to be struck by lightning. Go to safe shelter immediately.
- Listen to NOAA Weather Radio, commercial radio, or television for the latest weather forecasts.
- An AM radio will pick up static from lightning strikes in your vicinity before you see or hear them.

## When a Storm Approaches...

- Lightning storms are often announced by a sudden drop in temperature and increase in wind. The temperature drop and breeze are usually the result of a downburst of cold air. Once the air hits the ground, it has no place to go but outward in all directions. In the process, the cold air mixes with the warmer air at ground level, becoming a breeze and a temperature drop. Temperature will also drop from the air moving toward you through all of that cold water, in the storm, that is approaching. This can happen several minutes before it actually begins to rain.
- Find shelter in a building or car. Keep car windows closed and avoid convertibles.
- Telephone lines and metal pipes can conduct electricity. Unplug appliances. Avoid using the telephone or any electrical appliances.
- Stay away from open doors and windows, fireplaces, radiators, stoves, metal pipes, sinks, and plug-in electrical appliances.
- Avoid taking a bath or shower, or running water for any other purpose.
- Turn off the air conditioner. Power surges from lightning can overload the compressor, resulting in a costly repair job!
- Draw blinds and shades over windows. If windows break due to objects blown by the wind, the shades will prevent glass from shattering into your home.

## If Caught Outside...

- The summits of mountains, crests of ridges, slopes above timberline, and large meadows are extremely hazardous places to be during lightning storms. If you are caught in such an exposed place, quickly descend to a lower elevation, away from the direction of the

approaching storm, and squat down, keeping your head low. A dense forest located in a depression provides the best protection. Avoid taking shelter under isolated trees or trees much taller than adjacent trees. Stay away from water, metal objects, and other substances that will conduct electricity long distances.

- Stay in the car if you are traveling. Automobiles offer excellent lightning protection.
- If you are in the woods, take shelter under the shorter trees.
- If you are boating or swimming, get to land and find shelter immediately!

### **Protecting Yourself Outside...**

- Don't take laundry off the clothesline.
- Keep away from fences, metal clotheslines, telephone lines, power lines, pipelines, and any electrically conductive elevated objects.
- Avoid hilltops, open spaces, isolated buildings, exposed sheds or other metal structures. Descend from ridges and mountains on the leeward side.
- Don't handle flammable materials in open containers.
- Don't use metal objects such as fishing rods and golf clubs. Golfers wearing cleated shoes are particularly good lightning rods.
- Avoid the highest object in the area. If only isolated trees are nearby, the best protection is to crouch in the open, keeping twice as far away from isolated trees as the trees are high. Whenever lightning is nearby, take off backpacks with either external or internal metal frames. In tents, stay at least a few inches from metal tent poles.
- When you are setting up a campsite in the summer-time, keep thunderstorms in mind. Don't pitch your tent close to the larger trees in the area, since these are the ones sought after by lightning. Be especially careful to avoid trees that have long vertical notches in their trunks, or have long, narrow strips of bark peeled from the trunk. When lightning hits a tree, most of its force travels down the moist area between the bark and the wood of the trunk. The bark gets stripped off when the resulting stream forces its escape, and the narrow vertical notches come about as the tree heals over the following years.
- Go to a low-lying, open place away from trees, poles, or metal objects.
- Make sure the place you pick is not subject to flooding
- Stop tractor work, especially when the tractor is pulling metal equipment, and dismount. Tractors (including lawn tractors) and other implements in metallic contact with the ground are often struck by lightning.
- Get out of the water and off small boats. If you cannot get out of the small boat (i.e., too far from land) you should position yourself as low as possible in the boat, preferably with your entire body below the line

of the boat. Do not try to out race the storm to land. Also when getting out of the water go at least 100 yards away from the shore.

### **Be a Very Small Target!**

- Lightning takes the path of least resistance to the ground. Since air is a very poor conductor, lightning seeks anything better - and an upright human being is far better for its purpose than air! Stick up above the grass and trees while hiking, and you become a prime target.
- Squat low to the ground. Place your hands on your knees with your head between them. Make yourself the smallest target possible. By squatting with your feet close together, you have minimal contact with the ground, thus reducing danger from ground currents.
- If the threat of lightning strikes is great, your group should not huddle together but spread out at least 15 feet apart. If one member of your group is jolted, the rest of you can tend to him.
- If you can't get out of the open, put your pack, walking stick, whatever, about 30 feet away from you, propped up high, and huddle on the ground.
- Don't sit down, you make a larger target. Crouch down (between two boulders if possible) on your feet on top of your rolled sleeping bag, a foam pad, coiled rope or whatever supplementary insulation you have and ride out the storm.
- Do not lie flat on the ground---this will make you a larger target!

### **After the Storm Passes...**

- Stay away from storm-damaged areas.
- Listen to the radio for information and instructions.

### **If Someone is Struck by Lightning...**

- People struck by lightning carry no electrical charge and can be handled safely.
- Call for help. Get someone to dial 9-1-1 or your local Emergency Medical Services (EMS) number.
- The injured person has received an electrical shock and may be burned, both where they were struck and where the electricity left their body. Check for burns in both places.
- Give first aid. If breathing has stopped, begin rescue breathing. If the heart has stopped beating, a trained person should give CPR.
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### **Learn First Aid and CPR**

- Take a Red Cross first aid and CPR course. Call your local Red Cross chapter for class schedules and fees.

## Common Questions and Answers

Q: If you see lightning in the sky flashing all over the place, but hear no thunder does this mean it is too far away? or is there lightning that is close that never has thunder?

A: All lightning produces thunder. If you don't hear it, it's far off, depending on what other noise there is (strong winds between you and the lightning will disperse the thunder pretty well).

Q: Can you really count between thunder and lightning and see how far it is and how does that work?

A: Yes, count the number of seconds between lightning flash and sound of thunder, and then divide by 5. This works if you assume an average speed of the sound to be .2 miles per second.. Light travels at about 186,000 miles/second. Sound travels considerably more slowly. The distance to a lightning stroke is the time it takes for the sound to reach you after you've seen the lightning divided by the speed of sound.

Q: Is a travel trailer safe in lightning?

A: Yes, provided it is earthed (metal legs, not on wood or on rubber tires).

## References

- *The Guide to Safe Scouting* (#34411) available from the local BSA Council Office.
- *Fieldbook*, Boy Scouts of America (#3200)
- *All About Lightning*, Dover Books, ISBN 0-486-25237; Martin A. Uman
- *First Aid* merit badge pamphlet
- *Electricity* merit badge pamphlet
- *Emergency Preparedness* merit badge pamphlet

American Red Cross materials:

1. *Are You Ready for a Thunderstorm?* (ARC 5009)
2. *Thunderstorms and Lightning...the Underrated Killers* (ARC 5001)

American Red Cross General Disaster Preparedness materials for children:

1. *Disaster Preparedness Coloring Book (ARC 2200, English, or ARC 2200S, Spanish) for use by children 3-10.*
2. *Adventures of the Disaster Dudes (ARC 5024) video and Presenter's Guide for use by an adult with children in grades 4-6.*
3. *To get copies of American Red Cross Community Disaster Education materials, contact your Local Red Cross Chapter.*

Editor's Note: Thanks to the following people for contributions:

- [Norman J. MacLeod](#)
- [The American Red Cross](#)
- The gang at: [sci.geo.meteorology](http://sci.geo.meteorology)

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Edited by: [Bill Nelson](#), Unit Commissioner, Tempe District,  
Grand Canyon Council, Boy Scouts of America.  
Please let me know of any additions or corrections.

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