



Lightning 3-5



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Glossary

All-Clear signal: a signal given to indicate that danger has passed

capacitor: a device that stores electrical charges and can be used to maintain voltage levels

cloud-to-cloud lightning: lightning strikes between clouds

cloud-to-ground lightning: a lightning flash occurring between a charge center (either negative or positive) in the cloud and the ground. The cloud-to-ground discharge is initiated by a downward spreading leader followed by an extremely intense upward-moving return stroke that is the prime source of glow. A cloud-to-ground discharge is usually a multipart event, called a flash, composed of several distinct sequences of a leader stroke followed immediately by a return stroke, the majority using the same path and following each other by a few hundredths of a second. See *return stroke* and *stepped leader*.

conductor: a substance through which electricity can easily flow. Conductivity is the ability of a substance to conduct or carry an electrical current.

CPR: (Cardiopulmonary Resuscitation): an emergency procedure involving mouth-to-mouth respiration and chest compression. It allows oxygenated blood to circulate to vital organs.

current: the movement of electrons through a conductor

discharge: a sudden release of electricity

electric charge: an accumulation or build-up of electrical energy

electricity: a form of energy generated by friction, induction or chemical change, and having magnetic, chemical and radiant effects. It is a property of the basic particles of all matter, consisting of protons (positive charges) and electrons (negative charges), which attract each other.

electrode: a solid electric conductor through which an electric current enters or leaves an electrolytic cell or other medium; a collector or emitter of an electric charge

electrolyte: a substance that forms ions in a water solution to produce an electrically charged medium



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electron: a subatomic particle (one of the minute parts of an atom) that carries a negative energy charge

electron flow: the direction in which electrons flow, from negative to positive because electrons have a negative charge

electrophorus: an apparatus consisting of a resin disk and a metal plate that generates static electricity

electroscope: an instrument designed to detect very small charges of electricity and to indicate whether they are negative or positive

flash: the lightning that you see in thunderstorms

flash to bang: the time between a flash of lightning and the sound of the thunder caused by that stroke of lightning

fork lightning: Lightning that occurs because the electric energy seeks the path of least resistance, usually an irregular zigzag. In general, of the many branches of the stepped leader, only one is connected to ground defining the primary, bright return stroke path, and the other incomplete channels decay after the ascent of the first return stroke. It is called fork lightning because the lightning, seeking the least resistance, branches in many different directions along its path.

Hands in Lap rule: A person's hands should remain in his or her lap to ensure they do not touch metal during an electrical storm.

hazardous activities: any kind of activity that places an individual in harm's way during a storm

hazardous jobs: a job that becomes dangerous during a storm, although safe under normal circumstances

indoors: inside a building

insulator: anything that prevents the exchange of electrical energy, such as plastic coating on wires, or glass or porcelain devices used to keep high-tension (high-voltage) wires apart

Leyden jar: an electric capacitor consisting of a glass jar coated inside and outside with metal foil and having the inner coating connected to a conducting rod passed through the insulating stopper

lightning: any visible electric discharge produced by positively charged and negatively charged areas in a thunderstorm

lightning frequency: how often lightning occurs in a particular geographical area



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meteorologist: a scientist who specializes in the field of weather. Meteorologists track storms and predict when and where storms are expected as well as their severity

negative charge: electricity having the lower potential in a voltaic cell; composed of electrons

positive charge: electricity having the higher potential in a voltaic cell; composed of protons

positive streamer: a channel of charged air created by protons on the ground. These positive streamers are created at the same time as leaders, and they ascend from the ground to the sky seeking a connection with a negative leader.

proton: a subatomic particle (one of the minute parts of an atom) that carries a positive energy charge

return stroke: an electric charge that travels from the ground to a thundercloud. The return stroke takes place after the leader stroke.

ribbon lightning: ordinary cloud-to-ground lightning that appears to be spread horizontally into a ribbon of parallel luminous streaks when a very strong wind is blowing at right angles to the observer's line of sight

safe place: a building or area deemed safe from an electrical storm

sheet lightning: a white flash that appears to cover a wide expanse of sky. It is actually the reflection of a lightning flash that is hidden by clouds.

shower: precipitation that is characterized by its sudden beginning and ending, changes in intensity, and rapid changes in the appearance of the sky

static electricity: a form of electricity that is created when an object has too many electrons, giving it a negative charge

stepped leader or step leader: a powerful surge of negative electricity, composed of zigzagging segments or steps, that descends from the base of a thunderstorm, surging downward 150 feet (about 46 meters) at a time trying to complete a channel to the ground. In less than a second, it is close enough to the ground to meet positive streamers ascending from the earth and to send a flow of electrons through the channel.

Storm Prediction Center: a branch of the National Centers for Environmental Prediction. The center monitors and forecasts ordinary and severe thunderstorms, tornadoes and other hazardous weather phenomena across the United States. It was formerly known as the Severe Local Storms (SELS) unit of the National Severe Storms Forecast Center.

strike: the point at which lightning makes contact with the ground or other object



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stroke: the name for a part of a flash of lightning; the visible current of electricity that travels from a cloud to the ground. There can be many strokes in one flash of lightning.

thunder: the sound that follows a flash of lightning and is caused by a sudden expansion of the air in the path of the electric discharge. Over three-quarters of the electrical discharge from lightning is used in superheating the gases in the atmosphere and immediately around the channel, causing a violent pressure wave and the sound of thunder.

Thunder Rule: for lightning safety, when thunder roars, go indoors. Do not resume outdoor activities until 30 minutes after the last flash and bang.

thunderbolt: a popular term for a lightning discharge accompanied by thunder. In mythology, a thunderbolt is a missile-like object cast to earth in a lightning flash.

thunderstorm: a storm of relatively short duration, produced by a cumulonimbus cloud, and characterized by thunder, lightning, gusty surface winds, turbulence, hail, icing, precipitation, moderate to extreme updrafts and downdrafts and, under the most severe conditions, tornadoes

turbulence: the unstable flow of a liquid or gas

volt: the standard unit of measurement for electricity

voltage: a measure of electrical potential energy

weather monitor: a person chosen to watch for changes in the weather



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