

The sky is filled with [electric charge](#). In a calm sky, the positive (+) and negative (-) charges are evenly spaced throughout the atmosphere. Therefore, a calm sky has a neutral charge.

Inside a [thunderstorm](#), the electric charge is spread out differently. A thunderstorm is made up of ice crystals and [hailstones](#). The ice crystals have a positive charge, and the hailstones have a negative charge. An [updraft](#) pushes the ice crystals to the top of the thunderstorm cloud. At the same time, the hailstones are pushed to the bottom of the thunderstorm by its [downdraft](#). These processes separate the positive and negative charges of the cloud into two levels: the positive charge at the top and the negative charge at the bottom.

During a thunderstorm, the [Earth's](#) surface has a positive charge. Because opposites attract, the negative charge at the bottom of the [thunder cloud](#) wants to link up with the positive charge of the Earth's surface.

Once the negative charge at the bottom of the cloud gets large enough, a flow of negative charge rushes toward the Earth. This is known as a stepped leader. The positive charges of the Earth are attracted to this stepped leader, so a flow of positive charge moves into the [air](#). When the stepped leader and the positive charge from the earth meet, a strong electric current carries positive charge up into the [cloud](#). This electric current is known as the return stroke and humans can see it as [lightning](#).