

Lightning is a giant spark of electricity that occurs inside a cloud. The spark is made by static electricity created by moving particles in cumulonimbus storm clouds. When the spark happens, it forms a **bolt** of lightning that can reach from the cloud all the way to the ground, as far as fifty feet away. Lightning usually happens in spring and summer when there is much rain.

The two types of lightning are sheet and forked. **Sheet lightning** stays inside the cloud and makes the cloud light up. **Forked lightning** shoots out of a cloud and looks like bright tree branches. Lightning can be white, yellow, orange, or purple, which is the hottest. Lightning is bright enough to be seen a hundred miles away, but its diameter is about the size of a quarter. Each day on Earth, there are about nine million lightning strikes!

Lightning is extremely hot, hotter than the sun, and heats the air so fast that—boom!—**thunder** is created when the air expands like an explosion. Lightning moves faster than sound, so lightning is seen before thunder is heard. To determine how far away a lightning strike is, count the time between seeing the lightning and hearing the thunder:

Start counting at the lightning and stop at thunder; for every count of five, the lightning is one mile away (count of ten = two miles, and so forth).

Lightning often strikes tall trees and buildings, as well as water. Some tall buildings use poles called lightning rods, so that these poles, not the buildings, will be hit. A **lightning rod** is a metal pole placed on the top of a building, with a cable going down to the ground. The lightning hits the rod and avoids the building by running along the cable to the ground. The safest place to be during lightning is indoors, away from water, trees, and windows.

Thunder comes from an Old German word that means “sound.” Ancient people had different ways to explain thunder. In Norse mythology, Thor was the god of thunder. He carried a huge hammer that flew from the sky as thunder. In Greek and Roman mythology, Vulcan (Greek) or Hephaestus (Roman) was the god of the forge who created lightning and thunder when he was working with metal and fire. Vulcan (or Hephaestus) was also believed to live at the bottom of a mountain that had sparks shooting out of it when he worked. The mountain was actually a volcano.

Answer the Following

1. If twenty counts occur between lightning and thunder, how far away is the lightning? _____
2. How is thunder created? _____

3. How is lightning created? _____
4. Where is the safest place to be during lightning? _____
5. Can lightning happen without thunder? Why or why not? _____

