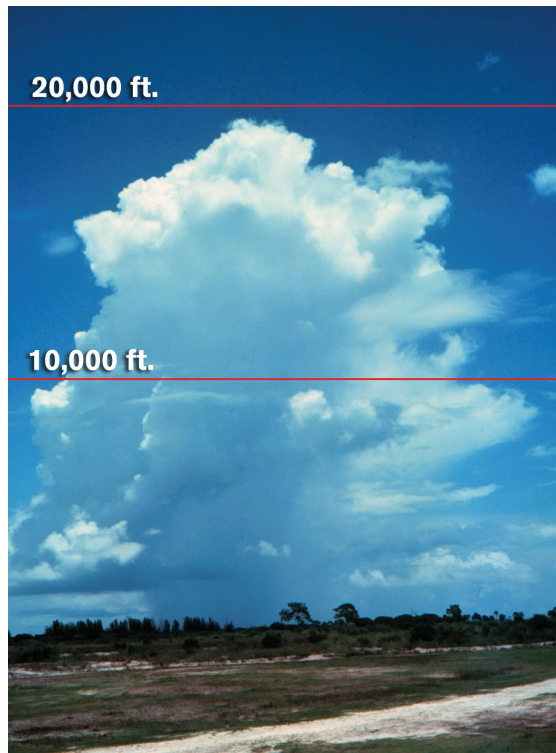


# Thunderstorms and Lightning

Thunderstorms can happen anytime conditions are right. They start out as a *cumulus* cloud, which is a white puffy cloud. But instead of floating across the sky, this cumulus cloud starts to pile up, soaring miles high as it fills up with warm, moist air.

Once the cloud grows about 8 miles high, the air at the top becomes cooler and the moisture in the air *condenses*. That



means it turns into water drops that start to fall in the form of rain or hail. As the rain or hail falls, it pulls air from the cloud down with it, creating wind that drives the rain or hail toward the ground. That's why, during a thunderstorm, it can seem like a giant bucket is dumping water down from the sky!

1. Use your estimation skills to decide whether this thunderstorm cloud is tall enough to start producing rain or hail. (Remember: 1 mile = 5,280 feet.)  
Yes \_\_\_ No \_\_\_

**Be Prepared!** Remember the safety rule: *When the thunder roars, go indoors!* Always pay attention to weather reports. If there is a chance of thunderstorms, stay indoors and save outdoor fun for another day! During a thunderstorm, stay away from windows and glass doors in case they break. Lightning can come in through the plumbing, so don't do things that need running water. If you can't get inside, stay away from trees and power lines, and make sure you aren't the tallest object in the area. If you are in a car, stay there and don't touch anything metal. If you are in the water when a thunderstorm happens, get out immediately and go indoors for safety.

**To Learn More** about thunderstorms and lightning, visit [www.lightningsafety.noaa.gov](http://www.lightningsafety.noaa.gov) and [www.ready.gov/kids/know-the-facts/thunder](http://www.ready.gov/kids/know-the-facts/thunder), and play the thunderstorm episode of Monster Guard, a free app available at [redcross.org/monsterguard](http://redcross.org/monsterguard). To learn more about all kinds of emergencies, visit [redcross.org/pillowcase](http://redcross.org/pillowcase).

Thunderstorms usually last only about 30 minutes, but they can produce a downpour of rain that causes flooding or a burst of hail that breaks windows and dents cars. Some can even produce tornadoes. The most dangerous part of every thunderstorm is lightning. Thunder is the sound of lightning, so whenever you hear thunder, you know there is lightning nearby.

Lightning is a gigantic spark of electricity that connects the thundercloud to the ground. It's so hot that it causes the air to "explode" – that's the sound we hear as thunder. However, thunder travels much slower than the light from a lightning bolt, so we usually hear thunder a few seconds after we see lightning.

It takes thunder 5 seconds to travel one mile from the lightning that caused it. So if you see a flash of lightning and hear thunder 5 seconds later, you know the lightning was one mile away. To be safe, you should always go indoors when you hear thunder, especially if it comes less than 30 seconds after you see a flash of lightning.

2. Use your division skills to figure out how far away the lightning is when you hear thunder 30 seconds after you see the flash.  
 $30 \text{ seconds} \div 5 \text{ seconds to travel 1 mile} = \underline{\hspace{2cm}} \text{ miles}$



ANSWERS: 1-No; 2-Approximately 6 miles away