



## **“Lightning it Up” That’s the Truth Episode #3 Backgrounder**

**Science Myth:** Lightening never strikes the same place twice

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### **CURRICULM CONNECTIONS**

Kindergarten: Environment and Community Awareness

Grade 1 Science Topic B: Seasonal Changes

Grade 5 Science Topic D: Weather Watch

Grade 5 Science Topic A: Electricity

### **Quick Facts**

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- There’s nothing stopping lightning from hitting the same spot twice.
- Lightning can and will strike the same place twice, whether it be during the same storm or even centuries later.
- The Empire State Building, for example, once endured eight strikes in 24 minutes during a storm. Even without a lightning rod, there’s nothing keeping lightning away from the spot that just got hit.
- Lightening is very dangerous - The best advice for avoiding lightning? Get the heck to a shelter, house, car or any other structure that protects you from an angry bolt.
- When we see a lightning strike, we’re witnessing the discharge of electricity that has built up in a cloud, which is so strong that it breaks through the ionized air. This creates

a stepped leader, or the lightning bolt, that travels downward until it reaches the ground. It is an incredibly quick process that takes only about 30 milliseconds. And right after lightning strikes, it reverberates in quick succession.

- Essentially, multiple strikes can happen at the same place in this short period of time. Technically, the lightning is already striking more than once. Even during the same thunderstorm, there is nothing stopping a lightning bolt from striking the same place it had struck previously, even if it was as little as a few seconds earlier or as much as centuries later.

## Discussion Questions

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- Can lightning strike the same place twice?
- How does lightning form?
- What should you do to stay safe during a lightning storm?

## Activity Ideas

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- Follow up with National Geographic’s “The Science of Lightening”. Make up a test and answer key based on the video to exchange for a classmate or family member  
<https://www.youtube.com/watch?v=h-0gNI5f4BU>
- Conduct a weather experiment  
<https://www.steamsational.com/weather-science-for-kids/>
- Create a poem about the weather phenomenon you are most interested in  
<http://www.canteach.ca/elementary/songspoems17.html>  
<https://poets.org/text/poems-about-weather>  
<https://www.poetry4kids.com/lessons/poetry-writing-lessons/>
- Make a weather word word-search or crossword for a family member or peer  
<https://www.enchantedlearning.com/wordlist/weather.shtml>  
[https://www.education.com/worksheet-generator/reading/word-search/?gclid=EAlaIqobChMI\\_vDPg8T36QIVRT2tBh2foQNBAAAYASAAEgIY3\\_D\\_BwE](https://www.education.com/worksheet-generator/reading/word-search/?gclid=EAlaIqobChMI_vDPg8T36QIVRT2tBh2foQNBAAAYASAAEgIY3_D_BwE)

## Reference Source Articles & Links

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### *Does Lightning Ever Strike the Same Place Twice?*

The Empire State Building gets hit by lightning about 100 times a year.

Before we start in the best strategy to dodge lightning strikes, let's talk a little **about just how dangerous lightning is**. Sure, we're bombarded with talk of how rare a human hit is, and how unlikely it would be. But make no bones about it: A lightning strike can mess you up. The National Weather Service estimates 93 deaths and 300 injuries from lightning every year [source: [NASA](#)]. You might not be observing the horrific burns one would expect, but what you're getting is brain and [nerve damage](#) [source: [NWS](#)]. This is not the friendly zap of electricity we see cheerfully administered in cartoons, people.

So now that we all agree that **lightning is scary and should be avoided at all costs**, what's our strategy? Lay flat on the ground? Stand outside with rubber shoes? Or just watch for a spot that's already been hit, run like heck to it and stand firmly planted and triumphant, knowing that lightning never strikes the same place twice?

**Don't do that. Don't do any of that.** A brief lesson on the first two points: Laying flat on the ground absolutely increases your chances that any bolt that hits is going to travel to you from a ground current. Bad idea. Second, rubber shoes don't protect you from lightning. A lightning bolt is much too strong [source: [NWS](#)]. Those shoes will come in much handier if you're using them to run to a shelter.

As for the last strategy: nice try, but no dice. Lightning doesn't have some sort of memory that causes it to avoid a previously hit space. In fact, you might be disturbed to know that if lightning did have a personality, it would be one of a relentless psychopath who didn't mind repeating suffering on its victims. (Researchers have even found that one flash of lightning actually hits the ground at an average of 1.45 different strike points [source: [NASA](#)]. That's just mean.)

If you're a tall, spiky building in the middle of a thunderstorm, your luck is even worse. The Empire State Building, for instance, gets hit about 100 times a year [source: [NWS](#)]. Big television

towers might get hit every 30 seconds during a big storm [source: [Robinson](#)]. If you live in a place that gets decent thunderstorms regularly, you can expect that each quarter acre of land will get a hit every 100 years or so [source: [Robinson](#)]. And there's absolutely nothing stopping lightning from repeatedly hitting a spot during a good electrical storm.

The best advice for avoiding lightning? Get the heck to a shelter, house, car or any other structure that protects you from an angry bolt.

<https://science.howstuffworks.com/nature/climate-weather/storms/does-lightning-never-strike-same-spot-twice.htm>

### ***Myth: Lightning never strikes the same place twice***

Anyone familiar with lightning rods could probably already tell you **there's nothing stopping lightning from hitting the same spot twice**. The Empire State Building, for example, once endured [eight strikes in 24 minutes](#) during a storm. Even without a lightning rod, there's nothing keeping lightning away from the spot that just got hit. In fact, the features that made the spot likely to get hit once—height, presence of standing water, or terrain shape, for example—would be just as attractive to a second bolt, according to the [National Severe Storms Laboratory](#). Check out more weird [facts about lightning strikes](#).

<https://www.readersdigest.ca/culture/science-myths/>

See also: <https://www.readersdigest.ca/culture/facts-about-lightning-strikes/>

### ***Can Lightning Strike the Same Place Twice?***

“Lightning never strikes the same place twice” is a common phrase you've probably heard before, often used to reassure someone that whatever bad thing has happened, it won't happen again. It can even be used when something good happens, such as winning the lottery, but the underlying truth remains. What are the odds that something extremely unlikely, such as a lightning strike, will happen more than once? After all, a thunderstorm travels across an area. So after lightning strikes one place, it's probably safe from another strike. In reality, [lightning](#) can and will strike the same place twice, whether it be during the same storm or even centuries later.

When we see a lightning strike, we're witnessing the discharge of electricity that has built up in a cloud, which is so strong that it breaks through the ionized air. This creates a stepped leader, or the lightning bolt, that travels downward until it reaches the ground. It is an incredibly quick

process that takes only about 30 milliseconds. And right after lightning strikes, it reverberates in quick succession. So, essentially, multiple strikes can happen at the same place in this short period of time. Technically, the lightning is already striking more than once. Even during the same thunderstorm, there is nothing stopping a lightning bolt from striking the same place it had struck previously, even if it was as little as a few seconds earlier or as much as centuries later.

In the U.S. alone there is an average of 20 million cloud to ground lightning strikes per year. This makes the likelihood of a place being struck by lightning multiple times incredibly high over a long period of time. If anything, if there is a significant attraction between the bolt and the place it previously hit, it's *more* likely that the same place would be struck again. Skyscrapers are more susceptible to strikes since they significantly reduce the distance the stepped leader needs to travel. For instance, famous skyscrapers like the Empire State Building in New York City and the Willis Tower in Chicago are nearly guaranteed to be struck by lightning each time a thunderstorm passes overhead—but don't worry, they have built-in lightning rods to make sure no damage is done to the building!

<https://www.britannica.com/story/can-lightning-strike-the-same-place-twice>