The Science of Lightning

Name _____ **Date** _____

Read the passage. Answer in complete sentences with evidence.

A bolt of lightning is a giant spark of electricity. Inside a storm cloud, bits of ice and water crash together and build up electric charge. When the charge gets big enough, it jumps, between clouds or down to the ground. A lightning bolt can heat the air around it to about 50,000°F. That is roughly five times hotter than the surface of the Sun!

That sudden heat makes the air expand so fast that it creates a shock wave. We hear it as **thunder**. Light travels much faster than sound, so you see the flash first. Count the seconds between the flash and the thunder: every 5 seconds means the lightning is about 1 mile away.

Lightning strikes Earth about 40 to 50 times every second. And yes, it can strike the same place twice: the Empire State Building is hit about 20 times a year. Safety experts have a simple rule: *When thunder roars, go indoors.*

Questions

1. **Explain what causes thunder.**

2. **You see a flash and hear thunder 15 seconds later. About how far away was the lightning? Show your work.**

3. **Why do we see lightning before we hear thunder?**

4. **Which detail disproves the saying "lightning never strikes the same place twice"?**

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