Directions
Read this passage. Then answer questions 7 through 12.

Excerpt from *Nature's Fireworks: A Book About Lightning*

by Josepha Sherman

1 Flash! Lightning streaks from a dark cloud.

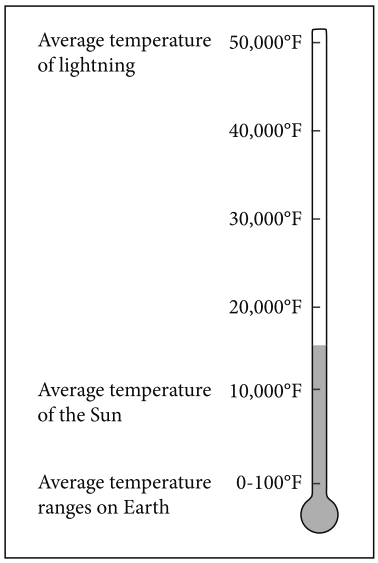
2 Crash! Thunder shakes our roofs and windows. A lightning storm dazzles the sky like flickering fireworks.

Lightning Begins

3 High above the ground, water droplets and ice crystals swirl and swarm inside the moving clouds. The tiny particles bump into one another. When the particles rush together, they become charged. Electricity is created.

Lightning is Electricity

4 A single stroke of lightning carries millions of volts of electricity. Each stroke heats the air in its path to as much as 50,000 degrees Fahrenheit (27,760 degrees Celsius). That is five times as hot as the surface of the sun.



Thunder and Lightning

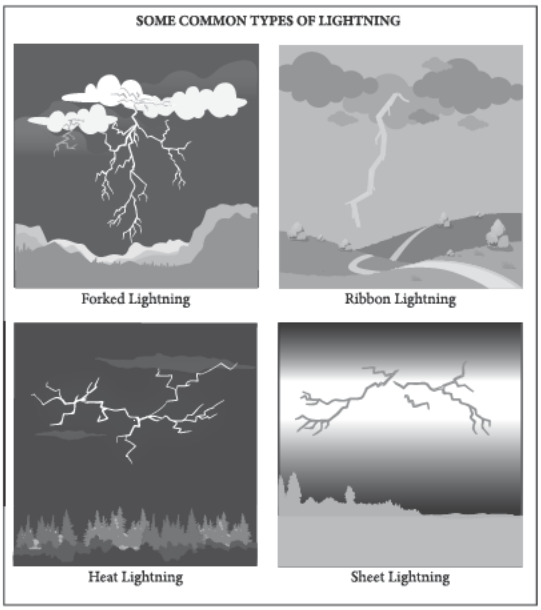
5 The heat from lightning makes the air expand quickly. Expanding air makes a booming, bursting sound like a firecracker. This is the sound of thunder. Thunder and lightning happen at the same time. Light travels faster than sound. This is why we often see the flash before we hear the boom.

expand = make larger

How Far Lightning Travels

6 Lightning can flash faster than you can blink. During a single flash, lightning can streak down to the ground and back up to the clouds. A lightning stroke that flashes down to earth can stretch up to nine miles (14 kilometers). That's taller than the world's highest mountain. Lightning flashes from cloud to cloud can travel even longer distances.

7 Ribbon lightning darts from the sky. It looks like jagged streaks side by side. Forked lightning looks like an upside-down tree. The branches of electricity reach through the clouds. Sheet lightning streaks inside a cloud. The cloud lights up like a bright, white sheet. Heat lightning happens during the hot summer. It looks like faraway flashes in the sky. Heat lightning is too far away for its thunder to be heard.



Lightning Around the World

8 Every day, lightning flashes from thousands of thunderstorms around the world. Every second, more than 100 lightning bolts hit the ground. Lightning can strike a tree or dry grass. When this happens, a wildfire can start. Lightning bolts can hit tall buildings. They also can hit electrical towers, houses, and cars.

9 Flash! Lightning is streaking through the clouds. Every flash is another display of nature's fireworks.

Fast Facts

10 It does not have to be raining outside for lightning to strike. Lightning can strike both before and after the rain falls, or even when there is no rain at all. Lightning helps nature by putting nitrogen into the ground and air. Nitrogen is a nutrient. That means it feeds plants and helps them grow.

Safety Tips

11 Windows, water faucets, pipes, telephones, and electrical outlets can be dangerous when there is lightning in the sky. You should not run water or talk on the phone if you see lightning. You could get an electrical shock.

12 Benjamin Franklin once flew a kite in a lightning storm. That is how he learned about electricity. But today, we know lightning is very dangerous. If you see lightning, you should go indoors right away.

7 According to paragraph 5, what happens **right before** thunder can be heard?

A Little drops of water move around in the sky.

B Dark clouds appear in the sky.

C Rain droplets start to fall from the clouds.

D The air spreads because of heat from lightning.

8 What is the main idea of paragraph 6?

A Lightning can reach from the sky to the ground.

B A bolt of lightning can travel up to nine miles.

C Flashes of lightning can jump from one cloud to another.

D Lightning can move over large distances very quickly.

9 Which idea from the passage does the second illustration **best** support?

A Lightning can be helpful for nature.

B Lightning moves very quickly.

C Lightning appears in different ways in the sky.

D Lightning may strike before or after it rains.

10 What does the word "nutrient" mean as it is used in paragraph 10?

A a type of lightning

B a supply of heat

C a kind of plant

D a form of food

11 Which question does the section "Fast Facts" help to answer?

A How does lightning help the earth?

B How is lightning different in the summer?

C How is electricity created in clouds?

D How can someone avoid an electrical shock?

12 Which sentence shows a cause and effect relationship that is stated in the passage?

A People see lightning before they hear thunder.

B Wildfires can start when lightning touches the ground.

C Heat from electricity is hotter than the surface of the sun.

D Lightning bolts can hit tall trees and buildings.