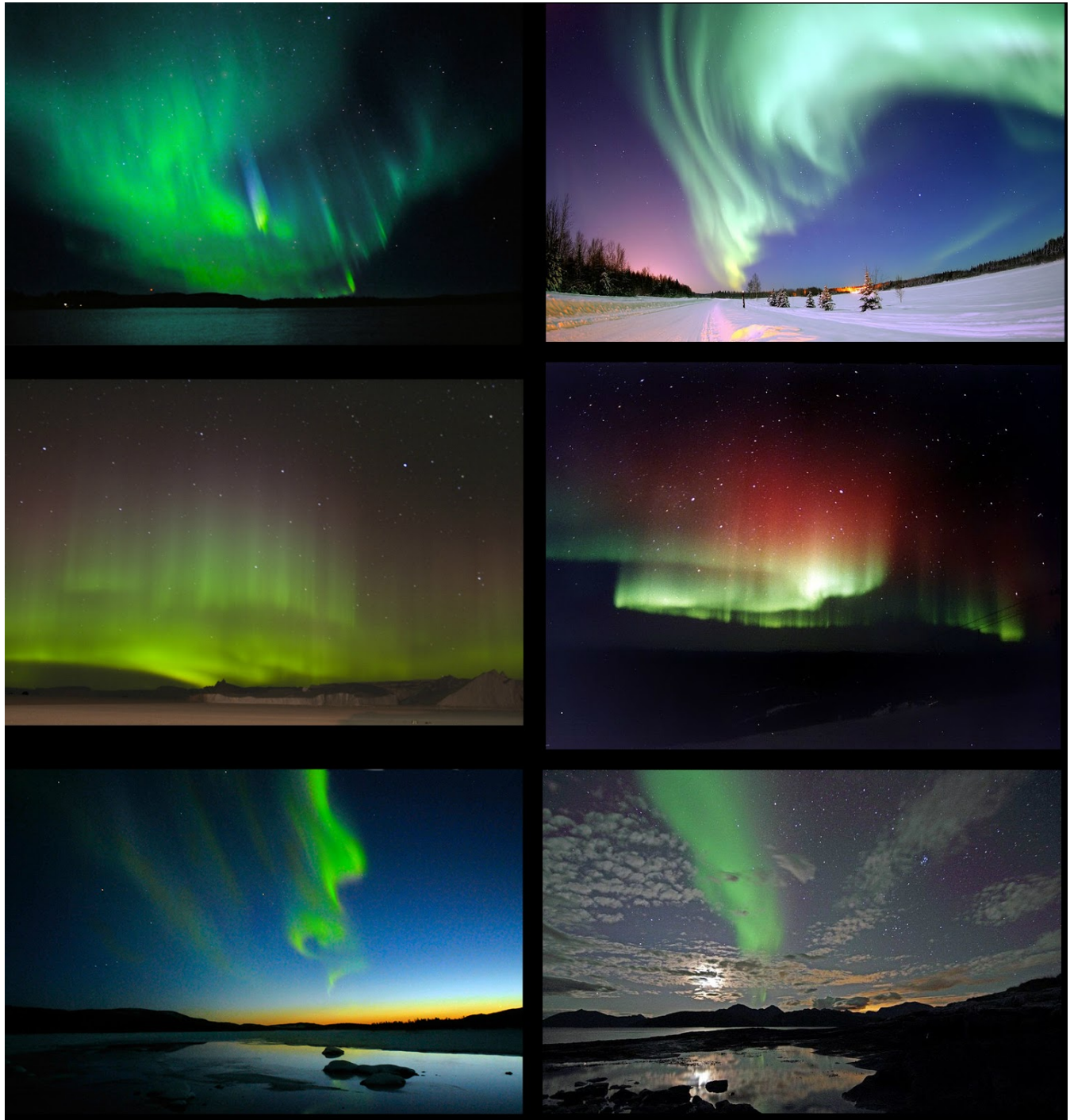


## Aurora Borealis Reading



*Image from Wikipedia*

Looking up at the night sky, you will probably notice that it is all one colour; a black blanket studded with stars and the occasional appearance of the moon from time to time. Of course at certain times of the year, like New Year's Eve, you can make the night sky appear as many different colours as you like with the help of fireworks that your family or neighbours let off into the sky. Besides this, however, you might be surprised to learn that if you took a trip to the chilly Arctic, in the North, or Antarctic, in the South, then you are very likely to see a colourful display without even needing to strike a match!

Planet Earth has its very own firework display, and a much more quieter one at that - you wouldn't need to cover your ears with your hands to watch the show! Astronomers call these light displays aurora and they appear most commonly at the northern or southern poles of our planet. To be able to tell them apart, scientists call the displays over the Arctic, aurora borealis and those over the Antarctic, aurora australis. To make it much easier to remember them, some people like to call them the Northern or Southern lights. You may have already heard of them, but do you know how they are made? If you are not sure, then maybe you and your friends can scribble down a few guesses before you carry on reading!

Aurorae are made, not from the gunpowder in your favourite firework, but partly by the Sun - our Solar System's very own fireball. When you've had a very fizzy drink that is full of gas, like Root Beer, what is the first thing you notice after drinking a full glass of it? That's right, you want to burp! The Sun is made of gas, so likes to let out a continuous belch that throws out particles with lots of energy from its surface - this is called the Solar Wind and we are usually in the path of it. From this stream of particles alone, an aurora is not always at its most spectacular - eruptions on the hot surface of the Sun called solar flares make them all of the more brighter - they are pretty hard to miss!

These particles could be dangerous to us, but we are protected by an invisible shield around our planet. Just like how a ball will bounce when you throw it against a wall, these particles will also bounce off of the Earth's protective layer. This shield is magnetic and called the magnetosphere which sometimes holds these particles prisoner. However, some break free and head towards the atmosphere of our planet - that's when the "fireworks" really begin!

As you have probably figured out, aurorae are most likely to be found at the poles of the planet. Do you know why this is? Just like a bar magnet, Earth has a North and a South Pole. The magnetism at the poles reaches all of the way down into our planet's core, and just like how you and your friends rush through the same corridor to the playground of your school when it's time to go home, the particles follow an invisible magnetic line down the poles. After wriggling through to the

Earth's atmosphere, the particles start to act like bumper cars at a fairground ride and bounce off the molecules (that's two or more particles attached to each other!) that can be found at the highest reaches of our planet. Our Earth's atmosphere is made of two main gases called oxygen and nitrogen. Both of these gases are made of the molecules that we came across earlier, and when they collide with the particles thrown out by the Sun, they emit the colours that turn the darkest of skies into a beautiful light show. You may have been lucky enough to see an aurora, or perhaps you may have seen one in a photograph - can you remember what colour it was? Aurorae can be a variety of colours; red, green, brownish-red, or blue and rather than appear as bright bursts in the sky, they look more like curtains. But what decides the colours? Can you guess which one of the two gases in the atmosphere make the shades mentioned? Check out the *Did you Know?* boxes to find out!

Reading from: [http://www.kidsastronomy.com/Aurora\\_article.php](http://www.kidsastronomy.com/Aurora_article.php)