

Stars

What are stars?

If you caught a star, what would it be like?

Each star is a giant sphere of billions and billions of nuclear explosions happening continuously!

These magnificent balls of light litter the universe, spewing out energy in all directions for millions or even billions of years.

The energy emitted from stars is in many forms, including heat, visible light and invisible light.

If you gaze up at the stars in your own backyard at night, you will notice that they don't all look alike. Stars can vary in size, brightness, even color.

The color of the star indicates the temperature, with red stars being the coolest and blue stars the hottest. But even the coolest red stars are around 5000 degrees fahrenheit. That's pretty hot!

Which of these stars do you think has the highest temperature? If you chose the blue star, you were correct. Blue stars are the hottest stars in the universe.

Which star do you think has the lowest temperature? The red star is the coolest star. Red stars are still very hot when compared to the temperatures we experience day to day, but at around 5000 degrees fahrenheit, that's a cool star!

Which star is the same color as our own star, the sun? Our sun is somewhere between yellow and orange, so it's not the coolest star out there. However, our sun blazes at about 10,000 degrees fahrenheit. That's pretty toasty!

Where did the stars come from, you might ask?

To help answer that question, let's first take a journey through some of the most beautiful creations of nature in the universe...

This is a nebula. Nebulae are enormous clouds of glowing gases and dust in space. The sizes of nebulae can vary, but some are hundreds of light years across. That means that you'd have to travel for hundreds of years at the speed of light to get across one! Nebulae contain large amounts of hydrogen which is the main ingredient needed for stars to form.

The nebulae that first existed in the universe formed a few hundred million years after the big bang. These nebulae contained atoms of hydrogen, the most simple of all elements. The hydrogen in the first nebulae was the raw ingredient for the universe's very first stars.

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We know what nebulae look like because of the images from powerful telescopes like the Hubble Space Telescope that orbits our Earth.

This is the Eagle nebula. It is about 7,000 light years from Earth and almost 5 light years across! Remember, that means that it would take 5 years at the speed of light to travel from one end pillar to the other.

Notice the light illuminating from the nebula. These are areas of star birth! Nebulae are referred to as star nurseries for this reason.

As you look up at the night sky, remember that, just like you, each and every star you see has a birthday. They are each born out of beautiful glowing nurseries strewn across the universe. Stars were born on your birthday, too!
