



Highly Commended

Science Writing

Year 3-4

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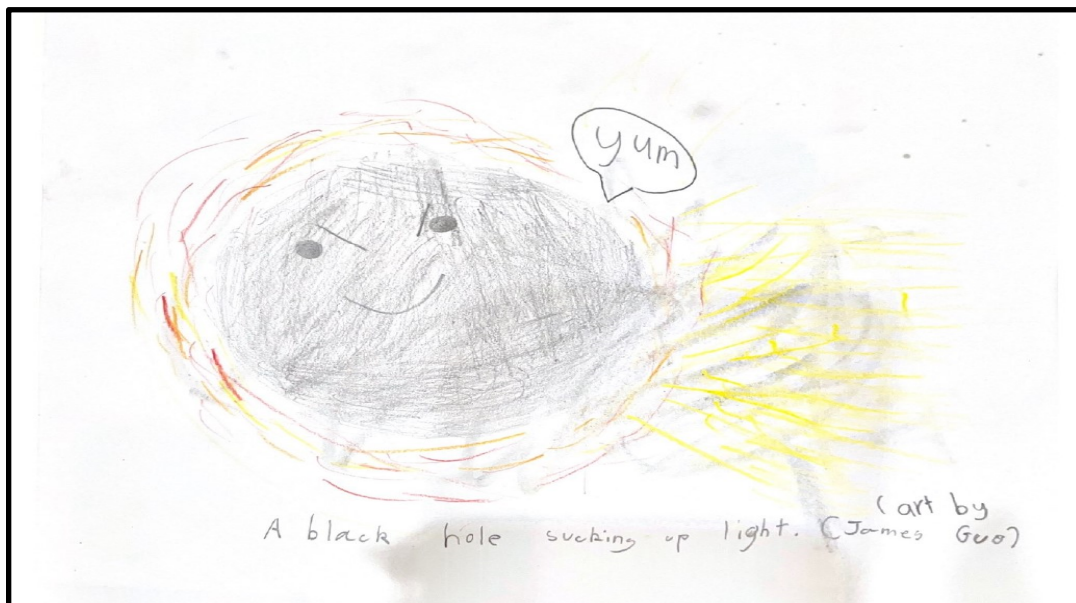


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Mysteries of the Universe

Have you ever wondered what lies at the center of the Milky Way, what happens to stars when they die, what may be concealed or hidden in the universe's deepest black regions, or will the sun eventually swallow the earth in the future? The universe is ever-expanding, and the marvels of the planet are limitless minuscule specs of space rock to nebulas of gas and hydrogen since the cosmos is home to many mind-boggling and enigmatic facts. Even now, the galaxies puzzle our aching brains and leave more questions than answers. So come with me as we reveal untold secrets, and discover the truth about our existence. People have always been captivated by celestial bodies trying to attach some importance and astounding divine meaning to the processes they observed during the shifting of the day and night.

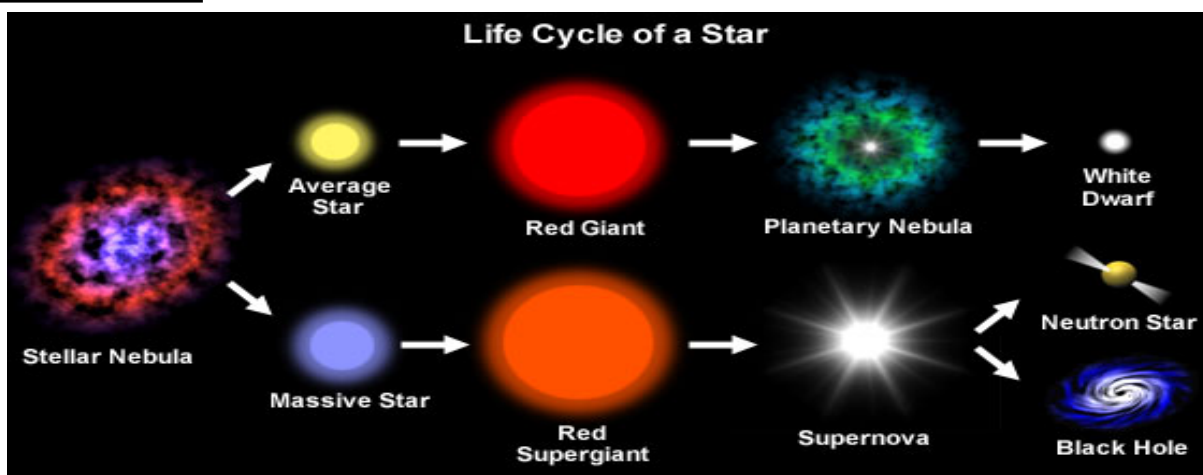
Black holes



Black holes are superpowered vacuum cleaners that suck up anything, even light. Black holes are celestial balls of hydrogen formed in the middle

of each galaxy and created when a red supergiant goes supernova, with a massive star turning into a black hole. The black hole then begins to expand and destroy anything within the range of a light-year (l.y). The first black hole ever discovered was Cygnus x-1 because of Albert Einstein's theory of relativity. Since black holes play a significant role in the planetary cycle, people must learn as much as possible about them.

Star Timeline



Life Cycle of a Star

Source: NASA

A star, one of the fundamental components in the universe, has a lifecycle. You may be wondering if stars are alive. Of course not, and the lifecycle of stars is just another name for how they go supernova and when they get formed. The stages are as follows: First, we have the stellar nebula, of which a star is born. Assuming the star was a typical star (0.5 -- 8 solar masses), it would ultimately develop into a red giant, combust into a planetary nebula, and then pull itself together through gravity to become a white dwarf. A star with a mass between 8.1 and 15 solar masses would turn into a red supergiant and go supernova. On the other hand, a tiny

massive star would become a neutron star. In addition, a big star of immense size would become a black hole.

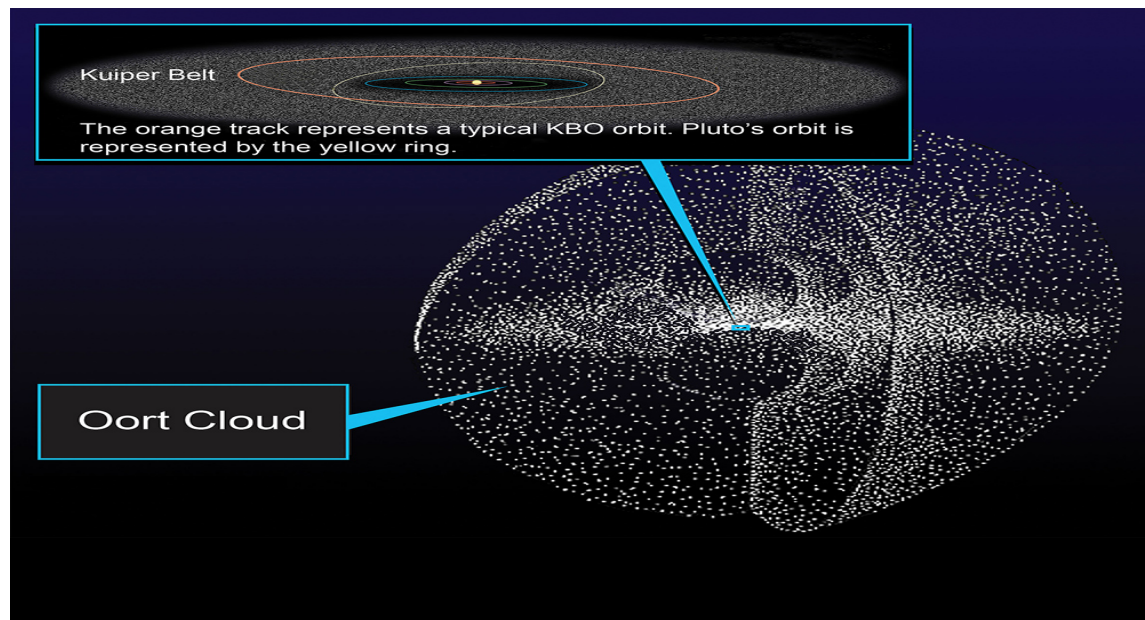
Sun swallows Earth



Source: Illustration ideas taken from Science Journal Nature Geoscience

The sun is an average star, but it will eventually become a red giant and engulf our solar system whole. While it may be impossible, scientists are trying to stop this string of fate from occurring. Billions of years into the future, the center of our system will collapse, and the star that supported life itself will turn on us. Sun is similar to a car, which uses hydrogen as petrol, but the sun has no refill, and once that burns out, we would be dead. Scientists predict that in around 5 billion years, the Sun will ultimately expand and swallow its inner planets, including Earth. So experts are trying to find a solution.

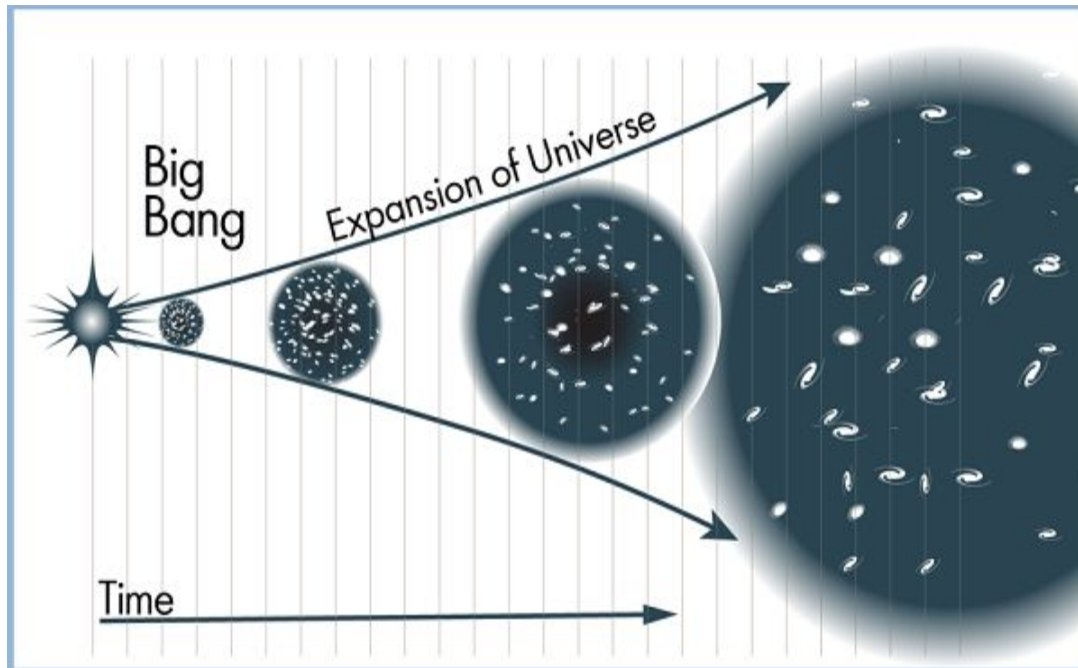
Oort Clouds



Source: NASA

The Oort cloud is a cloud of gas two lightyears away. It's a sphere of icy rocks where most of our meteors come from. It's a middle stage planetary nebula, making it the closest one to Earth. It develops as a result of several planetesimals becoming trapped inside the cloud. It marks the boundary of our solar system, and items discovered within are known to us as trans-Neptunian objects (TNOs). The main elements of the cloud's components are icy water and methane. Due to global warming, the earth is getting closer and closer to the Oort cloud and will eventually reach it.

Big Bang



Source: NASA

The big bang that created the universe was a giant explosion that blew essential atoms together and formed matter. This bang caused the gas cloud to condense, grow, and forever continue to do so. It is called the big bang expansion. A star can occasionally be formed from a stellar when the cloud of atoms condenses together. The gas cloud will spend the next couple of septillion years cooling down.

Conclusion

There are countless marvels across the cosmos, from the milky way to dangerous black holes. The world is a wonderful place and full of beautiful and unique wonders. The planet is a marvelous place to live in. Thus, it is our responsibility to preserve it. Who knows, you will discover a brand-new star cycle or a whole new eight planet.

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