

Name:

Grade:

Date:

Can you imagine?

Can you imagine that the Sun, that is almost a perfect sphere of plasma (for more than 4,571 miles of millions of years is the source of this planetary system) has had a weaker or stronger magnetic field? If that had happened, surely this massive celestial body would also have attracted other bodies and these would rotate around it, as they do, but in a different way.

Can you imagine that the third body that surrounds it has not been made at an average distance of 150 million kilometers? Can you imagine that, in this position, that incandescent ball, that will be the newborn Earth, would have been destroyed by the countless meteorites and comets that hit it 4.540 million years ago? Can you imagine that the planet had not had the reactions that worked so that, at its center, at 5.400 °C, a magnetic core of nickel and iron would form? It would be difficult to imagine that its nucleus would generate two magnetic fields to deflect the solar wind and the cosmic rays.

Can you imagine that this would not have been enough for the Earth to cool down, and as a result the gases attracted by gravity and protected by the magnetic field, it formed the primitive atmosphere of methane and ammonia that rolled this planet 4.400 million years ago?



Can you imagine that it was not methane and ammonia? Perhaps the reactions between other elements would not have caused the strong greenhouse emissions effect without which, the Earth would have cooled excessively and would have not been able to regulate its temperature in the exact degree to obtain liquid water from vapor captured for the atmosphere, and the ice brought by the unpredictable comets and meteorites.

Can you imagine what would have been of the planet without its Great Ocean... without that immense mass of water that, 3.500 million years ago, covered almost the entire planet in a primordial soup?

Can you imagine that this soup had another composition, another temperature? You are thinking right: The first microscopic life forms would not have sprung!

These would not have evolved into cyanobacteria, those fundamental beings, the first to produce oxygen and make photosynthesis 2.500 million years ago; the oxygen that they generated for hundreds of millions of years had not accumulated in the sea and in the air to the point of unleashing the Great Oxidation; without which the first glaciation would never have occurred, nor the mass extinction of life forms that did not adapt to breathe oxygen.


Nor can you imagine what would have happened if the planet had not taken a 2000-year glacier nap to receive multicellular beings on its surface 1.200 million years ago; marine animals 540 million years ago; plants, land animals and giant insects 314 million years ago.

Can you imagine that none of this happened? 250 million years ago there would not have been another great extinction; the dinosaurs would not have been born, nor the flowering plants 170 million years ago; neither mammals.

Do you understand little sister, that if none of this had happened as it happened, the species that inhabit the Earth would not have had the opportunity to adapt to the world, to diversify? Our species would not have multiplied, you and I would not exist, and today you could not read this letter that I wrote to tell you how much I love you especially today, because it's your birthday.

Do you understand everything that had to happen so that I can tell you happy birthday, little sister, I love you a lot!

Filomena the squirrel, your big sister.

 P.S.: I learned many things by making your birthday present.

