

"Far out in the uncharted backwaters of the unfashionable end of the western spiral arm of the Galaxy lies a small unregarded yellow sun. Orbiting this at a distance of roughly ninety-two million miles is an utterly insignificant little blue green planet whose ape-descended life forms are so amazingly primitive that they still think digital watches are a pretty neat idea." Douglas Adams

I want you to look into the sky tonight. You're seeing back into the past, maybe to just after the universe began 14 billion or so years ago. The light travelling to your retina along distances you cannot ever travel. You see at least two hundred billion galaxies. That's 200000000000. But guess what? NASA thinks it might be ten times that. In arabic numerals that is a two followed by twelve zeros, or as the nerd in me would say 2×10^{12} . Not just bigly but Big. Slightly awesome too.

We live in one of those galaxies and call it the Milky Way. There are 300 billion stars in the Milky Way and it is 10×10^{17} kilometres across. With no school zones or road works at 60km/h that is 16666666666666700 hours of driving and will use 144927536231884000 litres of 98 octane petrol in my Mini.

Now while you're pondering how you keep the kids entertained on a road trip like that imagine this; each of those solar systems might have planets. And lets just imagine one planet per solar system. Thats 30 billion planets. And we know one of those planets contains life.

It is a pale blue dot circling a yellow dwarf star. A G2V star to be precise. The star called Sol is about 4.5 billion years old. The Earth a ~~spring chicken at 6000 years old (Source Genesis Chap One)~~. Whoops sorry about interruption, well its about the same age as our sun. Sol is about 70 percent hydrogen and 23 percent helium, the lightest two elements known. And this lightweight sun contains 99.86 percent of the solar systems mass.

Our pale blue dot we have named Earth. It is an insignificant 0.0000158231 light years from Sol. Amongst the 8.7 million or so species that have inhabit the earth, our species numbers 7.5 billion and a bit. Did you know there are about 350000 species of beetles, and nearly 100 percent of all known species have probably gone extinct. We could give everyone of those people on the planet a quarter acre block in Australia and still have room left over.

All this seems very big to us, distances we could never travel, mass we could never move. Imagine what it is like for a Tardigrade. A creature of 40000 cells compared to our 370000000000000 cells. It can survive dehydration, and also deep space. They can live in environments like the deep ocean vents and survive temperatures just above absolute zero. Pretty cool huh? Hardier than a cockroach and a big one is just 0.7mm long and most are much smaller. Some might even be in that water you are about to drink and some might be having sex on your skin. They have lived since the Cretaceous, so longer than us and there are about 1000000000 of them for every human alive. It is omnivorous too, so it eats even smaller creatures than itself.

If you think that is small though just think of the atom. There are 7 billion billion billion atoms in your body. 7×10^{27} for all you nerds. That is an awful lot; no wonder you feel weighed down somedays. But what if I was to tell you that 99.999999999999 percent of you is empty space. That's right you are nearly 100 percent vacuum, now you know why you might be a little light headed some days. Take out all that empty space and all of human kind would be no bigger than a sugar cube. At an average weight of 50kg that cube weighs about 375000000000 tonnes.

So we sit at the midpoint of of infinity between the bigly and teensy. Grasping that existence in a universe that is indifferent, complex, random and undesigned. Despite the complexity, randomness, disorganisation and indifference there is beauty, splendour, and awe. The grandeur and the splendour defining the totality of our existence. I sit and type as a small speck of stardust on another piece of stardust made from the same stuff as the tardigrade, its prey, the planets, solar systems, galaxies, and the universe I see; and all the while thinking it is 99.999999999999 percent empty. So think of that when you look up at the sky tonight. I think of wow and how do I know more. What do you do? Do you just check the time on your digital watch?