

Questions for Eco-warrior / Planetary CFO - October 2017	
(from a group of about a dozen 10-15 year olds from a mixed demographic in a rural UK setting)	
Question	Answer
How many years until we run out of fossil fuels?	We are likely to have governments put measures in place to curb burning of fossil fuels, to prevent runaway climate change, many years before the physical reserves of fossil fuels are exhausted. Those stocks will become stranded assets.
How long before the Amazon rainforest disappears?	20% of the Amazon rainforest has disappeared since 1970, ie in about the last 50 years. A straight-line projection would see the rest all disappear in 200 years' time. However, many human systems show exponential patterns rather than linear. Exponential growth in logging would see the remaining rainforest disappear by the end of the current century.
Name 3 greenhouse gases	Carbon Dioxide, Methane and water vapour
Is carbon in the atmosphere a cause of global dimming?	No. Particulates in the atmosphere, not carbon, cause some global dimming. Some scientists now consider that the effects of global dimming have masked the effect of global warming to some extent and therefore that resolving global dimming (by making the air cleaner and healthier) will probably lead to increases in predictions of future temperature rises.
Is global warming real?	Yes, and scientific consensus is that the majority of it is generated by human activities.
How long before the world is destroyed by global warming?	The world itself will not be destroyed by global warming. In fact, there have been times millions of years ago when it was much warmer than it is today. The problems will arise from conditions in many parts of the world becoming impossible for humans to grow enough food to feed the global population. This would probably drive mass starvation and wars over scarce agricultural land. At current trends this would probably take place in the next 100 years, which is the blink of an eye in human evolutionary terms.
When will world war 3 be?	See above answer
When will the world die?	Eventually our sun will expand to become a supergiant and either boil, burn or engulf all life on our planet. But the whole of that process is going to happen billions of years in the future. Well before then, there are many, much more imminent existential threats to the human species, including (most importantly) our own collective actions. We have the ability to make this world a fantastic, abundant, vibrant place for all humans and our descendants through future millennia to thrive, playing our part within a sustainable ecosystem of living species, or by contrast to make it a place where the human species is either wiped out or lives a horrific existence on the precarious edge of extinction. Imagine being the last of your species alive on the planet, knowing that when you died, there would be nobody else to take the human story forward. I'd encourage you to work to avoid that happening to you or one of your descendants.
Will dinosaurs come back?	They've never really gone away. Have you looked closely at a crocodile or a chicken recently? As climate changes, evolution might again favour large animals. That's if we haven't completed the current major extinction event we are in now, much of which is driven by our actions. The current rate of species extinction is about a thousand times the background rate.
Why did someone say Sep 22nd was the end of the world	I hadn't heard of this, but I've googled it: "Various people are 'predicting' that [the] world will end Sept 23 [2017] when another planet collides with Earth," NASA was quoted as saying by iflscience.com. According to Forbes Magazine on 22nd September 2017: "You may have heard by now that the end of the world will begin on Saturday, September 23 [2017]. How exactly it will go down depends on which bizarre prophetic Youtube video you're watching on the subject. Most involve some combination of Christian numerology, a story about a five-headed dragon and a pregnant lady and a fictional planet named Nibiru that [allegedly] will come out of hiding this weekend just before smashing into the Earth. Just to be clear, there is no hidden planet in the inner solar system and new worlds don't appear instantaneously on any given weekend. Even if Nibiru were somehow lurking about out of view of countless telescopes, its presence would be otherwise detected because an object of that mass would perturb the orbits of the other planets, as NASA [has explained]." My own comments: I don't think it really matters who made the fanciful prediction and why. People are a creative, imaginative, thought-provoking phenomenon. We have bad dreams as well as good ones, random bad thoughts as well as good ones. It's what makes us human. However, what's important is that we marry imagination and science and know how to bring each of them to bear on important decisions we jointly take about our shared future on this one tiny rock we all live on. In Native American culture, all important decisions affecting the community take into account the predicted affects on seven generations. That's not a bad rule of thumb to aspire to in our decision-making. How many national governments take that view? Very few, I would suggest.

If you live in an igloo what's the worst thing about global warming?	The biggest problem for someone living in an igloo (as many of the Inuit people do) is likely to be their dependence on natural food sources in or near the oceans. Global warming is now taking its toll on one of the key surviving Inuit traditions - the yearly hunt for fish through holes cut through ocean ice. "I love ice fishing, I love fish eggs. But [the season] lasts only a few weeks and it gets scary very fast on the thin ice", Nellie Tookalook (an Inuit) told AFP [a news agency] in 2015. Winter used to arrive in October or November, "but it's later now," said Tookalook
What's your best idea to stop people littering?	Redesign products and supply chains so that very little waste is produced from consumption of goods and services. This tackles the problem at source. It's called circular economy. Everything that comes out of one part of the process is a valuable input to the next process in a continual circle. When the individual gets paid to 'supply' the output from one part as an input to the next part, they would not want to "throw it away" to create litter.
What is worse - cans or bottles?	There seems to be a lot of debate about this one. Both glass bottles and aluminium cans are getting more and more sustainable, as manufacturers use less and less material to make them and improve recycling rates each year. Looking forward, one recent innovation is a bottle made totally from plants. This would then be 100% bio-degradable (ie bio-recyclable). I'd say this is probably the way to go, ultimately, so that if any of the bottles aren't recycled by humans, they will be recycled by nature.
What is your favourite clothing or shoe brand?	I'm brand-agnostic. I choose products, for example clothes, based on a variety of criteria, including the social context in which I'll be wearing them and the sustainability of the supply chains that produced them. Also, the human rights of the workers in the supply chain is an important consideration, so I try to use fairtrade products.
What particle causes holes in the ozone layer and what household goods do they come from?	Chloro Fluorocarbons (CFCs). There is a success story here. The Ozone layer is almost totally healed today because of something called the Montreal agreement that was signed by many countries in the 1970s to limit the use of CFCs in household appliances like fridges (as part of the coolant). Ozone protects us from harmful solar radiation, which is a good thing but doesn't have any effect on global warming.
How many hurricanes will there be when I'm on the earth?	In 1850 there were about five Atlantic hurricanes per year. Now, the rate is running at about ten Atlantic hurricanes per year. If you live to be 100 years old, there will probably have been at least 1,500 hurricanes in your lifetime.
What's the most poisonous plant in the world?	There are numerous plants that contain toxins that can be lethal to humans. Probably the most likely to be encountered in the UK is Deadly Nightshade (<i>Atropa belladonna</i>) and this is probably the only one I believe I've had personal experience of. Whenever I've found what I thought were possibly examples of this plant in gardens of houses I've lived in, I've immediately dug them up and disposed of them. Better to be safe than sorry. This demonstrates the "precautionary principle". This principle is also applied by many environmentalists to feature in our approach to the planet and its biosphere. It's better to take beneficial (and practical) actions now (eg to limit further climate change) than to wait until it's got so bad that people suffer unnecessarily from its effects.
Are buses just big slaving robots?	Some buses are robotic. In some cities there are driverless buses. Not all robots are like <i>c3po</i> or <i>r2d2</i> . Soon, all cars will be driverless and electric and when passengers travel in them they will be able to use that time doing much more useful stuff than being a driver. the driving will be done by the 'robotic' bus.
Is life a video game?	It would be very difficult to prove conclusively that we are not already just sims (simulated people) inside a giant planetary computer simulation or what some might call a video game. That was a fantastic, existential philosophical question.
How many earthquakes have there been since the Earth began?	This is an approximation. Earth is about 4 billion years old. That's 4 thousand million. With an average of, say, one thousand quakes per year (many go unreported because small or in sparsely populated areas so nobody is affected). That's a total of about 4 trillion quakes, ie 4 million million quakes.
What percentage of the world is carbon dioxide?	The Earth's crust is about 0.2% carbon. The human body is about 20% carbon. This is why we are, in fact, an important part of the carbon cycle, just like all other living things on the planet (animals, plants and so on). The atmosphere today contains around 21 percent oxygen and about 0.04 percent carbon dioxide. This small amount of carbon dioxide makes a big difference to global temperatures because of the greenhouse effect, which amplifies the warming effect of greenhouse gases of which carbon dioxide is an example. Rainforests (as well as all other large populations of trees) are a useful "carbon sinks" because they trap a large amount of carbon (during the time they are alive) that would otherwise be in the atmosphere. When the trees die, the carbon in them is released, and some of it goes into the atmosphere as carbon dioxide. Fossil fuels are an even more concentrated carbon sink. When they are burned, a very large amount of carbon is released into the atmosphere compared to the weight of fuel consumed.

<p>How are republicans planning to reduce heating bills this winter? (2017)</p>	<p>Many national Governments around the world come under pressure (and rightly so) from their citizens to reduce the chances of elderly, unwell or poor people from dying from the cold in the Winter months, which is usually January to February in the Northern Hemisphere, July to August in the Southern Hemisphere. This is often expressed as the dreadful choice some people have to make between "eating or heating". In my view, the best way to tackle this is to ensure that there is an effective welfare system in place, operated by Government, which does two things: 1) eliminates poverty, so nobody is in a situation where they can't afford to heat their homes, and 2) people who are vulnerable to the cold for other reasons (eg perhaps mental or physical problems), have sufficient care provided to them so that their carers ensure they don't die from the cold.</p>
<p>What would happen if I died?</p>	<p>We will, each of us, die some day - hopefully after a long and happy life. Our bodies will be recycled by nature - more helpfully (from an ecological perspective) if we are buried rather than cremated. Alkaline hydrolysis is a modern alternative way of disposing of mortal remains - this accelerates the natural decay process, so that the molecules can re-enter the natural cycles like the carbon cycle more quickly. Regarding other aspects of "you" than your physical body (if these exist), nobody really knows for sure what happens when you die, because nobody has yet been able to incontrovertibly return after having died to tell us, or to at least communicate to us about their experience after they have died. To all intents and purposes, death appears to be a one-way journey that each of us must go on at some point. Without any scientific certainty on the matter, we are left to wonder or to reach our own beliefs about how that journey goes and what we experience next, whether it is an end or a new beginning, or a continuum in some way. This is the realm of faiths and religions, of which there are many to choose from (or you can make up your own if you prefer - you're only limited by you own imagination).</p>
<p>Will I die tomorrow?</p>	<p>The probability is very, very low but not zero. What's more important than when we die is how we live, since we have very little control over when we die, but we have a lot of control over how we live.</p>
<p>What is life really worth?</p>	<p>Life is the sum of all the impacts we have had, which can be immense if we have touched the lives of many others in good ways.</p>
<p>How many days to christmas?</p>	<p>It's about 45 days until Christmas, but it's also about 60 days after Earth Overshoot Day, which was in August. That's the day each year when we've used up all the sustainably produced outputs from Earth's ecosystems. From that point until 31 December, we are using up "Natural Capital" to keep ourselves alive. In the 1970s, Earth Overshoot day was between Christmas and New Year. That means that things have got a lot worse in my lifetime, and a lot of Natural Capital has been used up. We need to stop the deterioration and start to rebuild Natural Capital wherever we can. Our future survival depends on it.</p>
<p>Do you garden and what's your grass like?</p>	<p>I use organic style gardening and horticulture, with some grass for which regular mowing ensures it stays as grass rather than reverting to woodland - this mimics the actions of sheep grazing. Before sheep were widescale, much of England was covered with woods and forests. While gardens are not as sustainable as mixed woodlands, gardens can be managed in such a way that we're giving up only a small amount of ecological benefit for a large amount of home-grown, healthy food. I grow some fruit and vegetables for my family, and take surpluses (eg apples from the orchard) into my workplace for my co-workers to share. This growing of food reduces the "food miles" associated with buying food from shops, some of which has been transported very large distances before it gets to our the shelves in the shops.</p>
<p>Are you a vegetarian?</p>	<p>I'm not a vegetarian, but I have been much more conscious of my meat-eating as I've learned more about the effects of the meat supply chain on the ecosystems. The farming of animals for meat is a human invention. It has had immense benefits in the story of human development. But, as with many of our inventions, we now know that we pay a heavy environmental price for each kilo of meat we now consume. We are, biologically, omniverous, which means that we can survive very healthily on a wide variety of different types of food. We don't <i>have</i> to eat meat, but many people really enjoy meat and it has some advantages over just vegetables. It's a very rich source of protein and energy, and it has been argued that it's one of the main reasons we've been able to develop large brains and therefore to develop high intelligence and the ability to transform the environments around us, to be self-aware, to have concepts of the beings and landscapes beyond our immediate horizons, to communicate with each other really well and to build social organisation into our societies. These are all reasons why we have become so dominant on the Earth among the millions of species that co-exist here. We are 'the top of the (evolutionary) tree". With that position comes great responsibility, however, and part of that is about reassessing what our needs (not wants) actually are now, and within that we do need to challenge ourselves to eat less meat, or eat it less frequently, because the current methods of land use, farming, processing and consumption of meat is unsustainable in a global context.</p>

Do you like eating lobster?	I don't think I've ever eaten lobster, but I would try it at least once, as an experiment. The most unusual thing I've ever knowingly eaten was Northern Territories Crocodile (in Australia). It was very tasty (rather like beef). It has been said that each of us unwittingly eats quite a few spiders in the course of our lives, because they wander into our mouths or noses while we sleep. Our gain, their unfortunate loss, as they are also a rich source of protein and, indeed, some people suggest that insects and spiders should increasingly be made part of our diets because of our search for sustainable sources of protein.
Have you heard of Cardi B?	<p>I hadn't heard of Cardi B but I've since googled her. The following is what was written about her at capitalxtra.com (as at 6 Oct 2017):</p> <ul style="list-style-type: none"> • She comes from the Bronx, and her family is of Trinidadian/Dominican descent. • Her parents nicknamed her Bacardi, as a testament to her Caribbean heritage. • According to reports, she has in the past been an erotic dancer. • She was born in October 1992 so this month she will be 25 (Happy Birthday, Cardi B). • She planned to retire from stripping at 25 but quit at 23 when she became a social media personality. • She was for a while a regular character in a popular reality series called "Love And Hip Hop New York". However she recently quit to pursue other ventures. • She's said to be "worth about US\$4million". <p>My comments on this - In looking at celebrities who are written about in public media, it's easy to fall into the trap of judging them. We can only truly know a person by their works – how they live, what they do and how they affect other people through their lives. Cardi B is, at 25, still a very young person. She has clearly gained much influence and power through fame and fortune. This brings with it responsibilities to act and communicate in ways that benefit society, since the wealth that they achieve makes them one of a very small proportion of people on the planet with such wealth. According to wikipedia, the three wealthiest individuals in the world have assets that exceed those of the poorest 10 percent of the world's population. The net worth of the world's billionaires increased from less than \$1 trillion in 2000 to over \$7 trillion in 2015 so the gap is growing dramatically. Half of the world's wealth belongs to the "top" 1% of people. I haven't seen anything published about her views on the environment or social justice. I'd need to know more about these before reaching a view about whether or not she would be a good role model for young people.</p>
can I get a hoyo	I hadn't heard of Hoya but I've since googled it. According to Wikipedia, Hoya carnosa has been shown in recent studies at the University of Georgia to be an excellent remover of pollutants in the indoor environment.
Are you Jesus?	There is a little bit of Jesus in everyone. This is not only in a spiritual sense but also perhaps in a physical, scientific, biochemical sense. This is because there are historical records providing sufficient evidence for most people to accept that a man called Jesus actually existed. His body, like all other human bodies, will have, to some extent, returned to the natural cycles such as the carbon cycle. Those molecules will have dispersed, and might well have travelled through the bodies of many subsequent people up to the current day, either through the processes of respiration or as a part of the physical structures of their living bodies. There's at least some (small) probability that one of the carbon atoms in your body right now was also in Jesus' body when he was alive.
The world is interesting	The world is indeed a very interesting place. It's also the only world we currently know for sure is capable of supporting a significant human population. This uniqueness makes it incredibly important to look after it, for the continuing existence of the human species.
How are you?	Right now I'm feeling fine and I'm optimistic about tackling the challenges we all face to create a sustainable and just future for the world. There are many things I can do right now that will make the transition happen more quickly and with less disruption.
Can you do my homework for me?	I could probably do your homework (depending on the subject matter), but that would not help you in the long term because it's not the end result of the homework that is important - it's the process you go through in attempting to do your homework yourself that helps you to learn and to develop as a person.
Have you ever slept in a bath?	I can't be totally sure, because I'm not sure we always know when we have been asleep. It's possible that I might have, at one time or another, fallen asleep in the bath, but woken again without realising I'd been asleep. It's also possible I might have dreamed about falling asleep in a bath, within a dream that seemed so real that, at the time I was dreaming, I couldn't tell whether I was asleep or not. These are called lucid dreams. Sleep, dreaming and wakefulness are fascinating topics. We are the only species that we know for sure has dreams, although I suspect some other species with well developed brains probably do so as well, as a way their minds rest and 'process' their remembered physical and emotional experiences collected and stored in the subconscious while they were awake and had too little time to reflect. I don't think sleep is about physically resting our bodies, because we can do that perfectly well without sleeping.

<p>Can I die from someone hugging me?</p>	<p>Yes, probably, in exceptional circumstances such as if the person hugging you had a communicable, lethal, incurable disease, or if they hugged you so hard that it caused lethal internal injuries, or if, in hugging you, they prevented you from escaping from a lethal danger such as a terrorist bomb or a hungry predator. But all of these things are very, very, very unlikely to happen to any one particular individual. Just keep these sorts of things in the back of your mind - just in case you need to access your primeval fight or flight instinctual response to a future situation as it unfolds. But keep it in the context of the incredibly low chance of it happening.</p>
<p>Did you know that Iceland is soon going to be one of the biggest countries?</p>	<p>I didn't know this, but I'm sceptical about whether it is a true statement. I do know that Iceland is the most sparsely populated country in Europe.</p>
<p>If it's zero degrees outside and its going to get twice as cold tomorrow, how cold is it going to be?</p>	<p>Zero degree Celcius (the normal way of expressing temprature) is about 273 degrees on the Kelvin scale, where zero is the coldest vacuum in the emptiest void of space between the sparsest pieces of matter in the Universe - somewhere 'out there between the galaxies, far, far away' - maybe outside Han Solo's spaceship when he's on a long journey. Therefore, if it's going to be twice as cold tomorrow, it will be about "136 Kelvin" (-136 degrees Celcius). There's nowhere on Earth, except in special chambers inside scientific laboratories, where the temperature is ever that low. So you must be on your way to somewhere in space tomorrow. Wow. I'm jealous. I wonder how you're going to get there. The top of the mesosphere, called the mesopause, is the coldest part of Earth's atmosphere. Temperatures in the mesosphere fall as low as -101 °C (172 Kelvin). So you must be going further out than that, probably some of the way between the Earth and the Moon, maybe even further away from our sun, to have temperatures as low as 136 Kelvin (-136 degrees Celcius) outside. When you get there, please let me know what the view of the Earth looks like from there, and how it felt to "leave" the safety of our planet home.</p>