

SCIENTIA EST VITA

ISSUE 18



Inside
Environment

A black and white photograph of a magnifying glass resting on a page of mathematical work. The magnifying glass is centered over a system of linear equations. The text 'Editorial' is overlaid in white, bold font across the center of the image.

Editorial

In this issue of Scientia Est Vita, we are exploring the wide world of fuel and the environment.

This issue we've taken a look at a range of topics, from food, to solar power, as well as some tips that can help you make better choices involving the environment and sustainability.

So read carefully, because we teamed up with our school's eco council to help you, and us all gain a better understanding of what's truly going on.

With the power of science and this new found insight, we hope to enlighten you with all the wisdom that we have acquired from it as well. Since at the end of the day,

Scientia est vita. Knowledge is life.

So let us honour this power and the intelligence it grants us!

Alice Ledger
HONOURARY EDITOR

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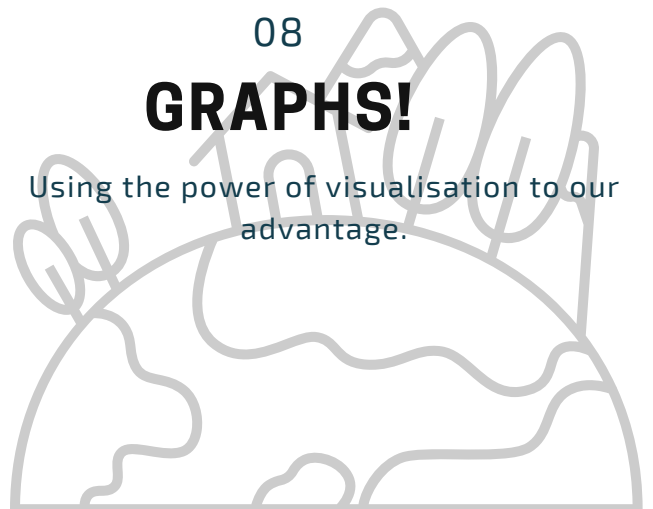
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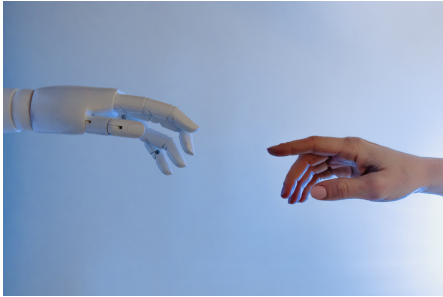
Using the power of visualisation to our advantage.



RECENT SCIENCE NEWS

ROBOTIC THERAPISTS

Thanks to a boom in AI Technology, new advances in the field have allowed for new discoveries to be made, such as using AI as a therapist.

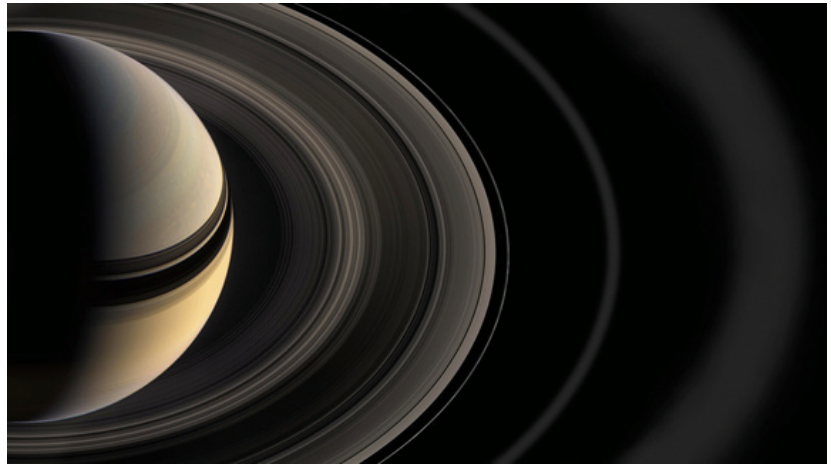


Apps such as Woebot and Replika are able to provide people the mental health care that they need if they are unable to wait for a real psychiatrist's attention or just need to get some things off of their chest.

There are many benefits to this as some people find it easier to open up to a robot rather than a real person, and as the technology can predict conditions such as anxiety before they set in. However, the robots are unable to read human emotions effectively or be able to give genuinely good advice, meaning that it is unlikely that they will take over from traditional therapy.

Saturn's ring

Saturn's ring may be no more than 400 million years old, and even may have formed while trilobites scuttled about on Earth. Space dust has been accumulating on the icy halos for no more than 400 million years. The 4.5-billion-year-old planet appears to have acquired its iconic ornamentation relatively recently.



MICROWAVES VS MOSQUITOS

Heating an insecticide can give it new life. For example, microwaving the insecticide deltamethrin rearranges its crystal structure but doesn't change its chemical composition. The rearrangement renews deltamethrin's ability to kill mosquitoes that have become resistant to the insecticide.





MARK BALLABON

On 19th April, Mark Ballabon, the author of the book "Home: My Life in The Universe", visited Cardinal Heenan hosting many workshops throughout the day. During lunchtime, he held a workshop about the Environment for the Eco Council and Science Magazine Club. At the end of it, he gave us the opportunity to ask him some questions about what he does. Here is what he had to say*:

What do you do?

I am an Author and Philosopher. In addition to that, I am also an Activist since I'm very passionate about the Earth and the Environment.

What is it like?

I love it, it's my life! My work is my life, it is my passion. Just like how teachers dedicate lots of time to teaching and helping their students because they are determined to inspire them, I often use my time to visit schools to do the same thing too, as well as to spread my message about the environment.

However, I have to use lots of self-leadership and be a living example of what I want to change or else there would be no point in me talking about how we are damaging our planet if I don't do anything about it myself. This is why I wear clothes that aren't made of synthetic materials and do my research

into different book and CD manufacturing companies because if their environmental morals don't align with mine, I won't work with them. It's also very important to speak out about climate injustices because if you don't make them known to people, nothing can be done about them.

"There will be no growth without resistance"

What did you have to do to get there?

Well, I had to gain lots of experience first which I did by travelling around the world and taking in everything that I saw. I also had to question everything around me which is something that I've been doing since I was 8 years old as this is how you discover more about the world around you.

It was also crucial that I used all the challenges I faced as a chance to personally develop myself as there will be no growth without resistance. Just like how some plants can still thrive and grow through the cracks in cement, making themselves much stronger, we should face adversities and use challenges like this to ultimately make us stronger too.

Whether that be through your successes or failures, it's important that you reflect on these events so that you can continue to improve.

What inspired you?

Young people did! Around 7.5 years ago, I was tasked with taking a group of young international students (ISO) around the University of Greenwich without having any guidelines on what I had to show them. So I did some research and decided to take them to places that I thought they would've enjoyed. The students wanted to go stargazing so I took them out to the observatory where we ended up having our lunch. Since I taught meditation at the university, they asked me if I could do a meditation session with them there which I did. At the end of it however, the youths didn't get up and go into the observatory room as I initially expected. In fact, nobody moved at all. It turned out that they actually wanted to sit down for a bit and ask me big questions about things such as black holes, death and the unknowns of the universe. I left that experience with the idea for writing Home and with inspiration for the protagonist, Leah, who also wanted to know about big things just like those students

*Due to the timing of the event and how much of his responses we were able to recall, not everything has been written word for word as he said it exactly.

Dairy

(and its effects on the environment)

Dairy is best known for being consumed with most things, whether it is as cheese or butter/margarine or consumed on their own e.g: yoghurt or ice-cream.

Although these products taste nice, their production has had an effect on the environment. The production of dairy causes 3.4% of all carbon emissions, this still equates to over 17 Million tonnes of Carbon Dioxide or 17 billion kilograms.

Cow's milk produces three times the amount of Carbon Dioxide than the plant based alternative, and it takes up ten times as much land and twenty times as much freshwater.

10 TIPS TO STAY CLIMATE POSITIVE

1. Take responsibility and make conscious choices for sustainability.
2. Reduce carbon footprint and mitigate negative impacts of climate change.
3. Reduce energy consumption, use sustainable products, and reduce waste.
4. Support sustainable businesses and organizations.
5. Plant trees, participate in community groups, and advocate for climate change policies.
6. Long-term commitment to sustainable choices and positive change.
7. Awareness of impacts on vulnerable communities and ecosystems.
8. Prioritize sustainable transportation options.
9. Conserve water and reduce water pollution.
10. Work towards a sustainable future for all.

Solar panels

By A.L.

AND HOW THEY REALLY WORK



Solar panels are a renewable way for buildings to source energy.

They were originally invented in the 1950's, and in 1958 they were first used in space, on the American satellite Vanguard 1, and the domestic use has significantly increased since 2015.

Despite not being used for larger projects until 1958, the first discovery leading to the use of solar panels across the world was first made in the 19th century. In 1954 Edmond Becquerel, a French physicist first observed the photovoltaic effect, where an electric current and voltage were created due to a material being exposed to light.

So how do they actually work?

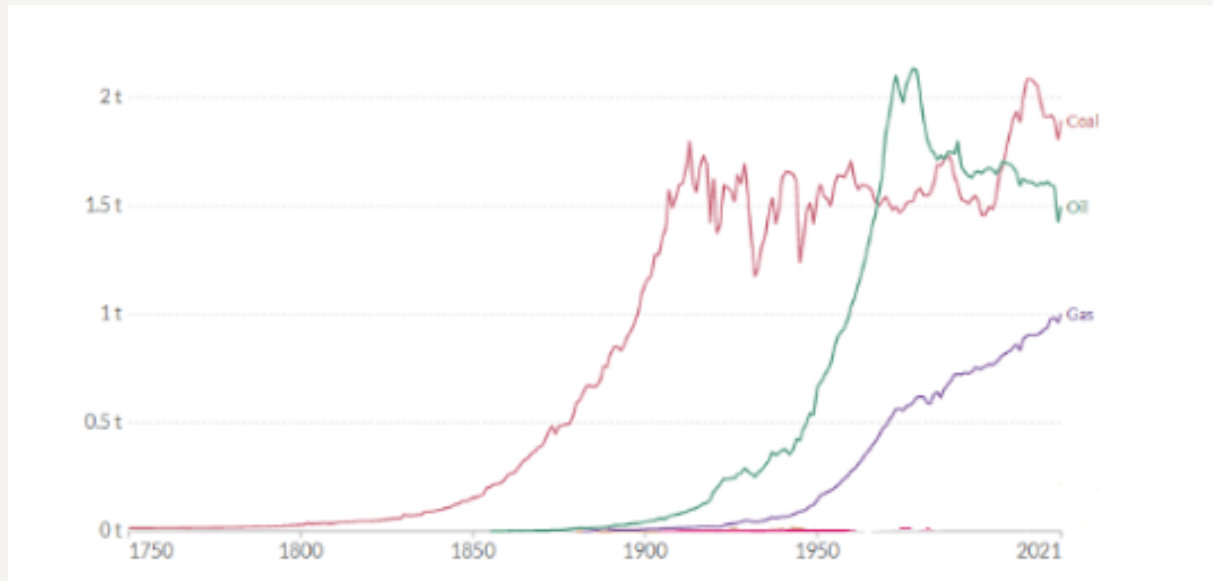
Solar panels contain PV cells, which absorb the energy from the sun. This energy is then used to create electrical charges, causing a current. The efficiency of solar panels has increased from an average conversion efficiency of 15% to 21%, which may seem low, but this will continue to increase as our technology and knowledge on the subject does. Even currently solar systems are very effective at producing energy for a household or business. The excess energy is used to charge batteries, meaning that even in the darker months of winter they can be used. Despite the initial cost of a system like this, solar panels can be a great investment for a household, and are also an extremely environmentally friendly source of energy.



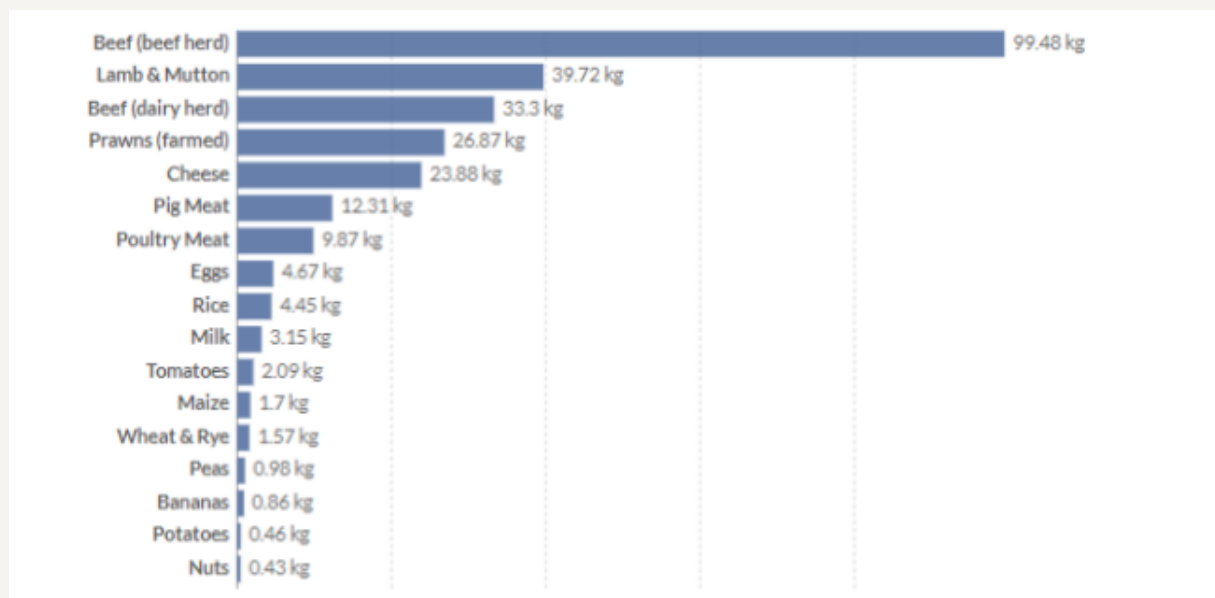
Graphs!

Brought to you by Maksymilian Mankowski

Everybody knows that science includes a lot of charts and graphs, so here are some specially selected for this edition of this paper!



This graph shows the amount of CO₂ produced by fossil fuels per capita from 1750 to 2021 by the world.



This graph shows the amount of greenhouse gas emissions caused by food over a 100 year timescale

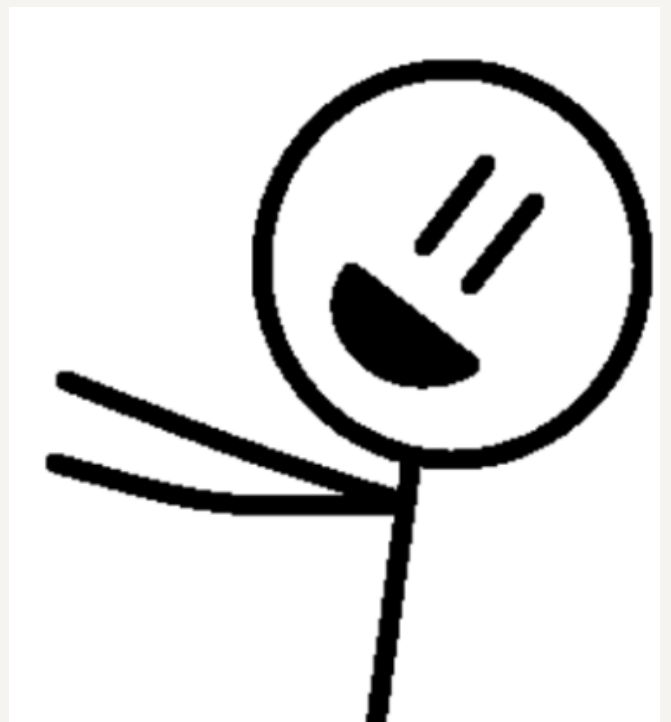
Conclusion:



These 2 graphs show us that we are over reliant on fuels as it produces too much carbon in the atmosphere, if we continue it could cause environmental problems.

Another thing is that meat produces way too much greenhouse gas and we rely on it as the main form of protein.

What we need to do is find out a new way to produce meat like foods, whether it be meat, or something else that produces way less greenhouse emission. Turning everybody vegetarian is unrealistic and shouldn't be attempted.

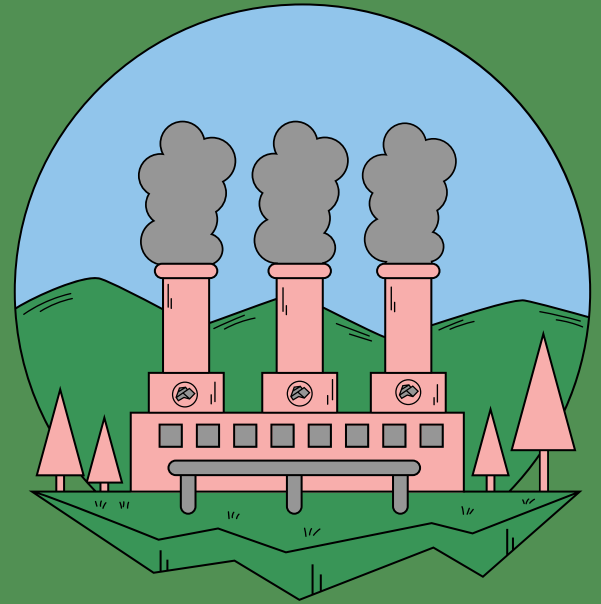


GEO THERMAL ENERGY

By Michelle Apawu

What is it?

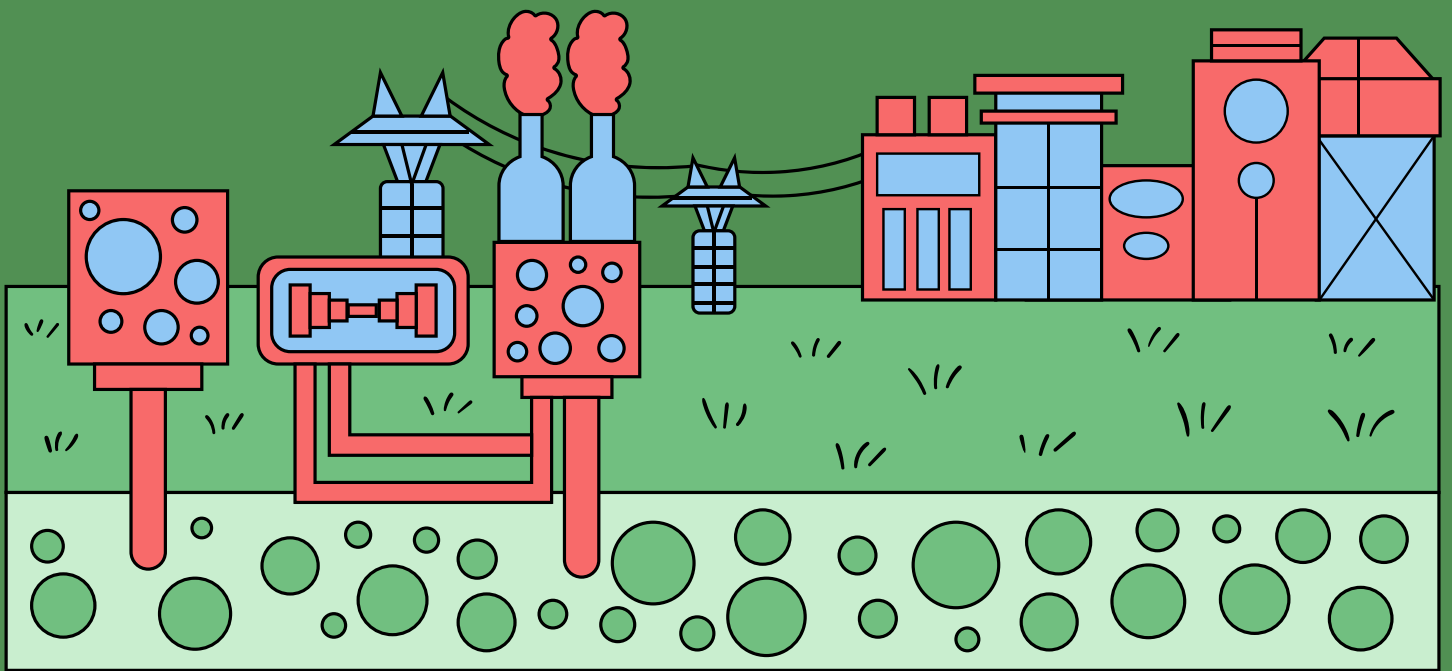
Fuel can come in different ways, shapes and forms. One of these forms is Geothermal Energy. Geo meaning Earth and thermal meaning heat which makes the full meaning of geothermal is heat from the Earth. This energy for is renewable and is environmentally friendly.



There are four layers that form our planet: the Crust, the Mantle, the Outer core and the Inner core. Molten rock called magma is found within the mantle underneath the Earth's crust magma plays a crucial role in geothermal energy. The magma in the mantle is surprisingly hotter than the surface of the Sun. It lies six miles below the surface and can produce 50,000 times more energy than the oils and natural gases on the planet. Using the right methods the heat from the magma in the mantle can be made into electricity. Yet this astonishing way of producing energy is still only used in over twenty countries around the world - it still has a long journey ahead.

How is it generated?

First of all geothermal wells are drilled approximately 3-10 km into the Earth. They pass water through this water evaporates and becomes steam. The steam then makes its way up and turns a turbine that turns a generator that produces electricity. Even though it may sound simple business fairly expensive yet after waiting there will be pennies rolling in from all over the place but what most people lack is patience. Although geothermal heating is much cheaper and much more straightforward. Pumping water into the ground and receiving hot water in return this heats the house.



Pros and Cons

Like most things geothermal energy has its pros and cons such as:

- It is a renewable energy source
- It doesn't release any carbon dioxide or any other forms of pollution
- It is suitable for the smallest of houses to the biggest of spaces

Yet with these complimentary facts there are some not so amazing ones:

- Drilling into the Earth can cause earthquakes (although this is quite uncommon and rare)
- It is recognisably expensive
- It takes a big usage of water to create the electricity

Where is Geothermal Energy?

Although the idea has not been pondered as much as it should be, geothermal energy is and has been explored in parts of the world such as: El Salvador, Mexico, Kenya, Iceland, Italy, New Zealand, Japan, Costa Rica, USA and Philippines.

These countries have seen the potential of geothermal energy and have used it for the growth of their countries electricity.

Credits

The Club

E.S

B.C.

W.T.

L.S.

A.L

M.M

M.A.

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Geothermal Energy