

Spider silk is one of nature's wonder materials, more flexible than nylon, thinner than a human hair, and, for its weight, stronger than steel. Webs and nests are spun from this incredible natural protein and spiders use thin threads to glide through the air and escape from predators. Now science is looking to exploit silk's properties as a way to deliver medicines and heal our bodies.

American households are among the most energy-hungry on the planet, consuming on average around 11,000 kilowatt-hours (kWh) of energy each year. Electric water heaters alone use between 380-500 kWh per month. So developing generation from natural tidal movement would appear to be one of the best ways to meet demand and reduce greenhouse gas emissions.

Desalination is one of the most widespread clean water technologies on the planet and its use is essential for dry regions with poor-quality fresh water supply. So a new low-cost solar-powered desalination device could be the ideal solution to make water purification more widely affordable and environmentally friendly.

No matter what, it's not much of a threat to us surface-bound folks. We have our trusty atmosphere to protect us against any deadly cosmic radiation. But orbiting satellites can run into issues without our magnetic field in place to protect them: already the South Atlantic Anomaly is a place best avoided, as the reduced magnetic protection causes some glitches in the delicate hardware of our satellites.

Vertical farming is a hugely promising agricultural technique that aims to produce more food to meet the growing population on our finite planet. Techniques include growing in vertical frames or even in high-rise farms, saving on precious ground space, while moving farms into urban areas, and producing nutritious crops without topsoil.

When you zoom out to the big picture (and I mean 'big' here, as in really big), all the problems and conflicts that have beset humanity ever since there was a humanity are almost laughably parochial. From the perspective of orbiting astronauts everything just dissolves. National borders are revealed to be nothing more than imaginary lines on a map. Majestic cities are reduced to smudges of grey. Great monuments of heroes and deeds and barely discernible.

Using a multi-layered vertical array of evaporators and condensers allows each unit to operate like a solar still, creating pure distilled water as vapor moves upwards through each layer. As vapor condenses on a surface it releases heat. Each stage then reuses that heat in the next evaporation process instead of wasting it.

Climate change is cited for the introduction of West Nile virus to the US. West Nile is spread by the mosquito species Culex and finds a natural reservoir in birds. People become infected by mosquito bites and that can cause damage to the brain and central nervous system, or even death. Research shows that Culex population growth is linked to higher temperatures, high humidity and drought. Approximately seven million people were infected in the US between 1999 and 2016.

These oscillations can be monitored from hundreds of miles away so storm chasers do not need to get so close to get data. Using this method alone could increase warning times and decrease false alarms. Scientists are now adapting instruments that were built to detect illegal nuclear weapons testing to listen in on storms from afar.

Our body's chemical and physical make-up and the way it functions are incredibly complex. Human bodies are estimated to contain up to one hundred trillion cells. We need fuel for these cells to function, provided by molecules, compounds, and chemical elements, yet 99% of our body's mass consists of just six elements.

In the winter, New Delhi looks like the something from the sets of a Black Mirror episode. Last year, clips were making the rounds of a series of accidents on the Yamuna Expressway between NOIDA, a city outside New Delhi that is part of the National Capital Region and the city of Agra. The air was so thick with smog and pollution that when one car stalled, subsequent cars could not tell until it was too late. Similar accidents were reported across the region. The visibility was like a cloud of smoke from a chimney had descended onto the highway.

Every star you see in the sky, including the sun, will someday die. It's best to get used to that idea now, before things start to get heavy. Thankfully, we've got a little bit of time. Our sun currently powers itself through the fusion of hydrogen into helium in its core. This is generally a good thing, since that fusion process provides all the heat and light and warmth that we have come to enjoy on our little watery rock, 93 million miles away.

You'd narrow the aperture, which keeps the light-collecting area on the lens small to avoid letting in too much light: the same reason your pupils constrict in bright sunlight. You'd also speed up the shutter speed so the camera sensor would only let in light for a brief moment. If you wanted to take a picture of that same friend at night, you'd probably slow down the shutter speed and widen the aperture so you could let in enough light for a good shot.

People who spend part of their time up north and the other part in Southwest Florida and other parts of the state must decide what they will do during the time they would normally travel down south. We spoke to a few northerners Wednesday, who say the continued rise in daily reported cases could be a deal breaker when assessing a return to the region. And a health expert we spoke to said, once here, it's not easy to stay indoors with all the amenities, including the beach, the area has to offer. But prevention is still possible.

Medium-sized stars, like our own sun, deplete their usable hydrogen in only a few billion years, which is plenty of time for little critters to grow up on some watery orbiting world and start asking questions. When stars like our sun die, they turn themselves inside out in a grotesque slow-motion horror show, eventually revealing their carbon and oxygen cores and leaving behind a glittering nebula.