NEWSLETTER

The official English newsletter of MathRover

In This Issue

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MathRover's First English Newsletter

Welcome to MathRover's first English Newsletter! This is a monthly newsletter that is planned, written, edited and designed by a group of MathRover students issued at the beginning of each month. So make sure to keep and eye out for every month's newsletter!

With that being said, this month's newsletter was put together by of four students: Ariana, Rachael, Steven and Stella. They worked very hard and hope you enjoy reading it! 🙂

ABOUT GAUSS

Written by Rachael

The Centre for Education in Mathematics and Computing (CEMC), is Canada's largest mathematics and computer science organization for youth. One of the contests available is Gauss, a mathematics contest available to Grade 7, 8 and interested students from lower grades. This contest takes place in May. Johann Carl Friedrich Gauss, (1777-1855), was a German mathematician and physicist who made substantial contributions to numerous areas of mathematics and science. He was a child prodigy, who at three years old, corrected a math error his father made; and at seven, solved an arithmetic series problem quicker than anyone else in his class. Gauss's breakthrough occurred in 1796 when he showed that a regular polygon could be built by compass and straightedge if the number of its sides is the product of distinct Fermat primes and a power of 2.
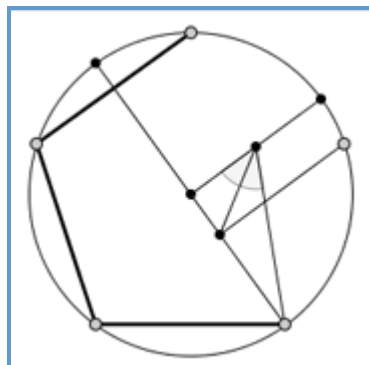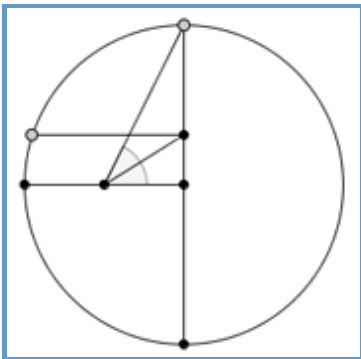
Construction of a regular polygon
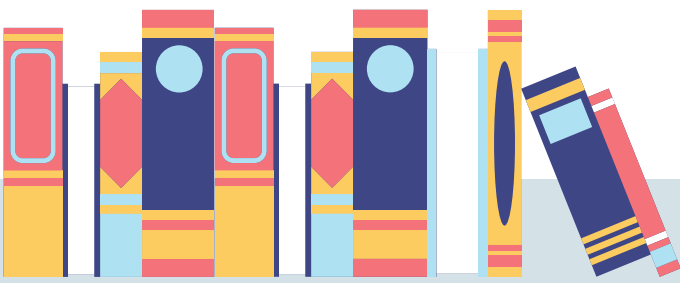
WHAT IF?
Written by Ariana

Have you ever wondered what would happen to the Earth if the Sun suddenly switched off? When, if ever, will Facebook contain more profiles of dead people than of living ones? If so, then the book *What if? Serious Scientific Answers the Absurd Hypothetical Questions* by Randall Munroe is the perfect read for you. It is a non-fiction science book and as the title suggests, is a collection of answers to ridiculous hypothetical questions. The book uses easy to understand language while mixing in some humour to keep the reader intrigued. In addition, Munroe has sprinkled many funny illustrations throughout the book.
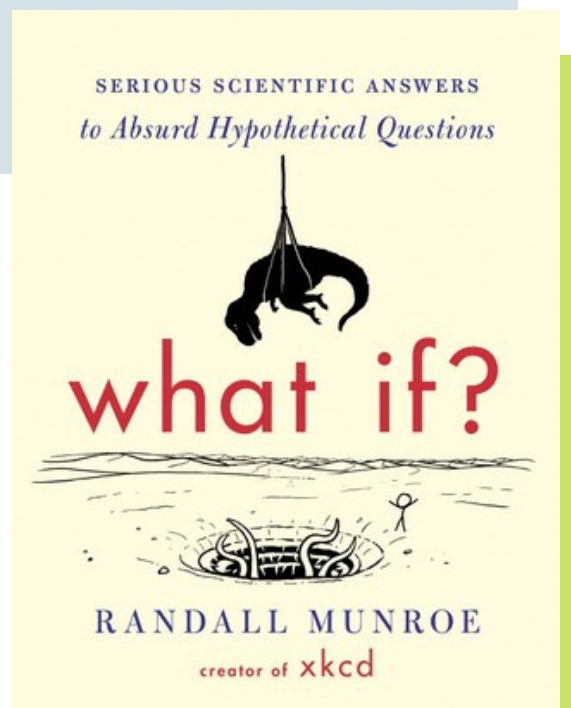
Since I first picked up the book in grade 9, I found the book to be very fun. I loved Munroe's use of humour throughout the book, that kept me laughing at every page. *What if?* is a very informative but also entertaining book that I recommend for all kids ages 12 and up.

Click the link below to check out Randall Munroe's website!

https://xkcd.com/

Click the link below to check out more information about *What if?* by Randall Munroe!

https://www.goodreads.com/book/show/21413662-what-if-serious-scientific-answers-to-absurd-hypothetical-questions

Our Natural Satellite and the World

Written by Stella

As we look up into the sky, the moon greets the stars, illuminating the night. We go by everyday minding the moon circling our home, but what significance does it play in our lives?

Our moon is certainly just an orbiting rock in space, but it is much more than that. We have sent countless satellites to space to gain a greater understanding of our earth and the universe, but the moon is also considered to be a 'satellite' itself!

The effect of the moon's gravitational pull to the earth is the reason why tides in the ocean exists. If it wasn't for this cycle, the oceans would always be 1/3rd of the average high tide depth!

But now in recent studies, the orbit of the moon is seemingly not as straightforward as we thought. As there are orbiting patterns where it can be elliptical and longer on one side, the moon has a wobbling orbit. This natural wobble effect is a big factor that affects the Earth when considering it influences the tides of the ocean. As a result, areas around the world will have higher rates of intensity and frequency in low/high tide because of the position of the moon in its cycle.

The impact of the state of the orbit its in, on top of the growing concern of climate change, it is a worrisome matter. Extensive flooding, droughts, and damage to the environment are what is expected if nothing is done about it.
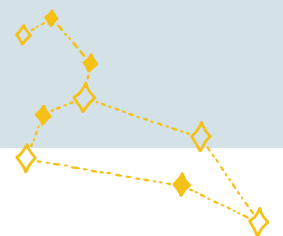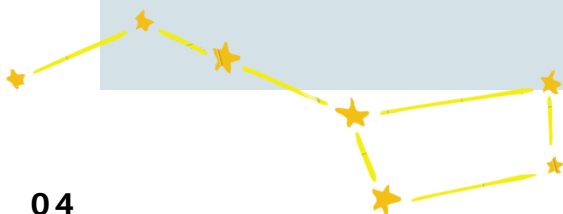
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So, what can we do to take action?

Well, as much as we love the moon and the beautiful scenery it creates, it is a celestial body that goes through a natural cycle. So looking at our own planet's matters, we have our main target to overcome which society will inevitably face, Climate Change.

There are countless media that address the reality and impacts of climate change. And even though that it has brought awareness to people, not enough are taking action since the solution seems too "large" for a single person to do.

It is indeed a great feat for the world to unite in in order to be greener in the sense of product and energy consumption. But keep in mind that Climate Change is happening because of our unknowing, reckless actions (extensive use of fossil fuels, depletion of natural resources, etc.) to begin with.
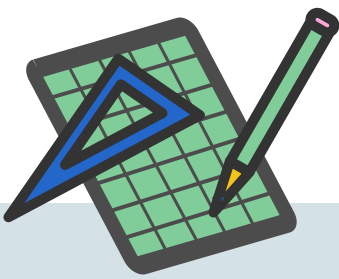
So to play a part, reduce your product and energy consumption (being efficient and buy smart), encourage your peers to do the same, and join communities such as Climate Justice, are some of the many ways to spread your voice and take action.

Research: |1|2|3|

Join Climate Justice:
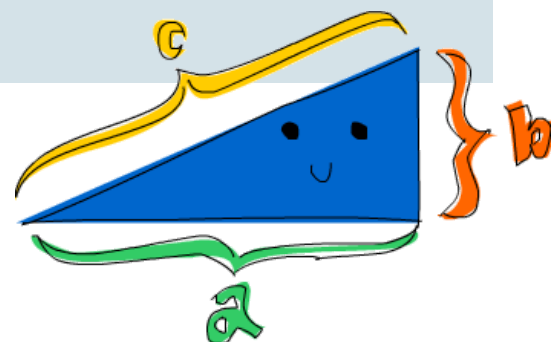https://www.greenpeace.org/international/act/climate-justice/
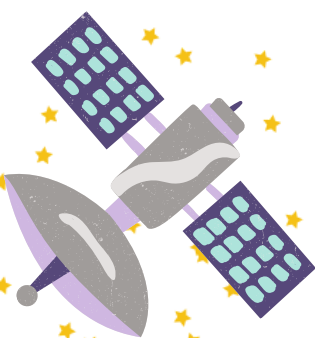
PYTHAGORAS

Written by Steven

Pythagoras of Samos[a] (c. 570 – c. 495 BC)[b] was an ancient Ionian Greek philosopher and the eponymous founder of Pythagoreanism. His political and religious teachings were well known in Magna Graecia and influenced the philosophies of Plato, Aristotle, and, through them, Western philosophy. Knowledge of his life is clouded by legend, but he appears to have been the son of Mnesarchus, a gem-engraver on the island of Samos. Modern scholars disagree regarding Pythagoras's education and influences, but they do agree that, around 530 BC, he travelled to Croton in southern Italy, where he founded a school in which initiates were sworn to secrecy and lived a communal, ascetic lifestyle. This lifestyle entailed a number of dietary prohibitions, traditionally said to have included vegetarianism, although modern scholars doubt that he ever advocated for complete vegetarianism.

The teaching most securely identified with Pythagoras is *metempsychosis*, or the "transmigration of souls", which holds that every soul is immortal and, upon death, enters into a new body. He may have also devised the doctrine of *musica universalis*, which holds that the planets move according to mathematical equations and thus resonate to produce an inaudible symphony of music. Scholars debate whether Pythagoras developed the numerological and musical teachings attributed to him, or if those teachings were developed by his later followers, particularly Philolaus of Croton. Following Croton's decisive victory over Sybaris in around 510 BC, Pythagoras followers came into conflict with supporters of democracy and Pythagorean meeting houses were burned. Pythagoras may have been killed during this persecution, or escaped to Metapontum, where he eventually died.

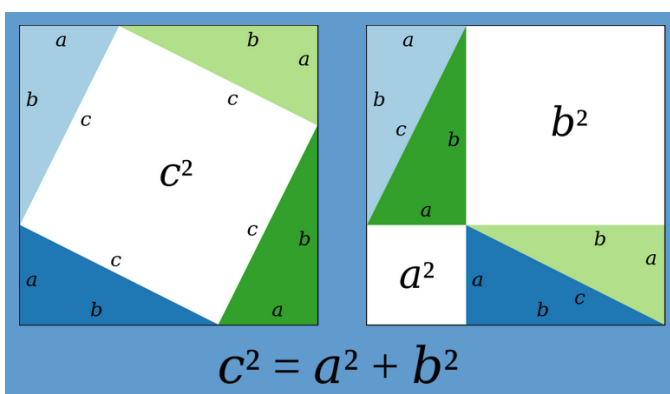In antiquity, Pythagoras was credited with many mathematical and scientific discoveries, including the Pythagorean theorem, Pythagorean tuning, the five regular solids, the Theory of Proportions, the sphericity of the Earth, and the identity of the morning and evening stars as the planet Venus. It was said that he was the first man to call himself a philosopher ("lover of wisdom")[c] and that he was the first to divide the globe into five climatic zones. Classical historians debate whether Pythagoras made these discoveries, and many of the accomplishments credited to him likely originated earlier or were made by his colleagues or successors. Some accounts mention that the philosophy associated with Pythagoras was related to mathematics and that numbers were important, but it is debated to what extent, if at all, he actually contributed to mathematics or natural philosophy.

Pythagoras influenced Plato, whose dialogues, especially his Timaeus, exhibit Pythagorean teachings. Pythagorean ideas on mathematical perfection also impacted ancient Greek art. His teachings underwent a major revival in the first century BC among Middle Platonists, coinciding with the rise of Neopythagoreanism. Pythagoras continued to be regarded as a great philosopher throughout the Middle Ages and his philosophy had a major impact on scientists such as Nicolaus Copernicus, Johannes Kepler, and Isaac Newton. Pythagorean symbolism was used throughout early modern European esotericism, and his teachings as portrayed in Ovid's Metamorphoses influenced the modern vegetarian movement.

$$c^2 = a^2 + b^2$$

Pythagoras' proof of the Pythagorean Theorem

Created by Ariana, Rachael, Stella & Steven