



**IMUNA**  
ארגון מודל האו"ם בישראל  
THE ISRAELI MODEL UN ASSOCIATION  
منظمة نموذج الأمم المتحدة في إسرائيل

# *INTERNATIONAL PI DAY 2020*

*By: Offek Marelyy*

**The Israeli Model United Nations Association**

*Dedicated to the Next Generation of Diplomatic Leadership*

On March 14th the world celebrates the International Pi Day. For most, Pi is something we vaguely remember from high school geometry and trigonometry class – and yet it has its own holiday, website and merchandise. People continue investing time and money to build supercomputers that calculate more and more digits of Pi, with new records making front page news. Yet, we cannot help but ask why? What is Pi? And why is it so important?

#### A 4,000-year-old mystery:

Pi is the numerical coefficient of the ratio between the circumference of a circle and its diameter. It is a mathematical constant – meaning that it remains the same no matter the size of the circle. The fact that the ratio between a circle's circumference and diameter is fixed, has been known to mankind for thousands of years. The knowledge that the numerical equivalent of Pi was close to three, dates back to the oldest of recorded history with mentions of this made in the bible, in Mesopotamian and in Ancient Egypt texts. The Rhind Papyrus – which was written during the 16th century B.C. and is a copy of text written 200 years prior – provides a relatively close approximation to the modern value of Pi. These ancient approximations were most certainly based on measurements. The first person to calculate Pi in a theoretical manner was the famed Greek philosopher Archimedes. Since then, attempts to attain a more accurate value of Pi continued. From the Philosophers of Ancient Greece, to the mathematicians of India, China, and Medieval Arab scholars, all the way to modern times. It might seem odd that so many great minds have spent so much time trying to increase the quantity of known digits to a number that simply describes the ratio of the circumference of a circle and its diameter, however, understanding and accurately defining Pi is of great importance in our day to day lives and for our understanding of the universe.

#### How Pi affects you:

The most obvious use of Pi is the one that we all learnt in high school – geometry. If one wants to build a building, find out the volume of water that can fit in their bottle or how much a ball weighs, one need only know the value of Pi. Realizing this, it is obvious that the ability to make accurate geometric calculations is extremely important for our everyday lives – just like it was for the Egyptians and Greeks thousands of years ago. But it turns out that the numerical coefficient of Pi shows up in many other places in math, engineering and physics.

Many problems in physics are spherical or circular, which means that we need to have an accurate value of Pi to properly describe and predict them. Everything that rotates swings and and spins, from a simple pendulum to your car's driveshaft to satellites in orbit – without the numerical coefficient of Pi, engineers would be unable to build them. But Pi doesn't stop there, you can find the numerical coefficient of Pi in formulas and fields of physic and engineering, which at first glance seemingly have nothing to do with circles. Pi appears in statistics and probability; it can be found in almost anything related to waves – particularly in electromagnetism and optics. Maxwell's Equations, which explain how electricity and magnetism work - and without which we wouldn't know how electric engines and generators work - utilize the numerical coefficient of Pi. Pi is an integral part of things such as the Fourier Transform which is the basis for how wireless communication works and how digital data is created. Pi also appears in fluid dynamics, structural engineering and so much more.



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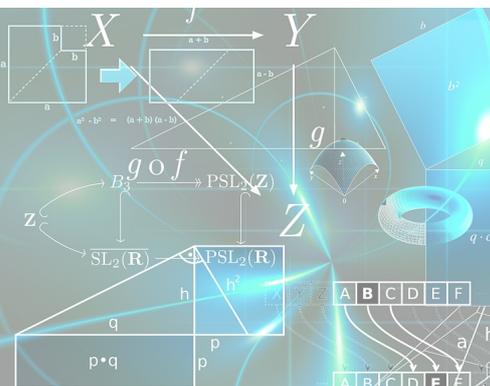


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International Pi Day is one of the few times each year when math and science take center stage. When most of us think of scientists we think of pale scrawny men in lab coats who spend their days in laboratories solving equations no one understands and needs. But this was not always so, in the past scientists were active members of the leadership – they either assumed direct political positions in government or had official positions recognized by the state which afforded them influence. Government consulted with them on all manner of issues – and often put them in charge of large national projects. Today, science affects our lives more than ever before.



This brings mankind great benefits but also new challenges. In 2015, the United Nations General Assembly set up the Sustainable Development Goals. These are 17 goals the nations of the world set to achieve by the year 2030 to ensure the long-term prosperity of mankind. Each goal represents a challenge faced by mankind – and the majority of them have been recognized by science long before the Sustainable Development Goals were set. Achieving these goals is imperative for our future as a species, and scientists are the people who should be at the forefront of achieving them. From developing sustainable agriculture that provides food security for future generations (SDG #2), to finding new sustainable energy sources (SDG #7) all the way to building advanced cities to house our growing population (SDG #11) – only scientists can make these a reality.



But just when scientists are needed the most, we've stopped listening, fewer and fewer scientists are part of the decision-making process – and the distrust of science and scientists is growing. Climate change deniers and anti-vaxxers are no longer fringe groups, and even some heads of state are openly skeptical about scientific research that contradicts their policies. It's not that scientists have grown less vocal, scientists have warned us about these issues for years, and world leaders have barely started to respond. The results are clear, five years after they were written down and hardly a decade from the set deadline, the Sustainable Development goals

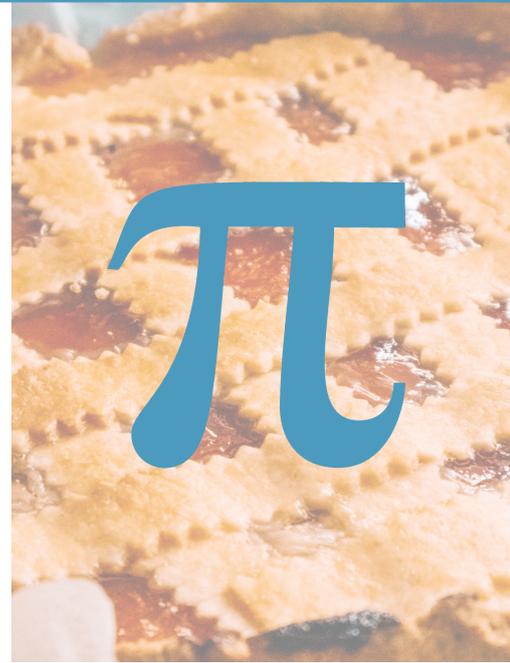
are no closer to being reached – some are only getting further away. Biodiversity both on land and sea is declining and soil erosion and desertification are compromising the food and water security of more and more people. Forests continue to disappear at alarming rates and our cities are growing ever more crowded as we keep using unsustainable fossil fuels and creating more trash.

If we want to keep moving forward towards a future where the Sustainable Development Goals are reality, and not wake up to a disaster we could have prevented ten years ago – we need to take science seriously. We need to listen to actual scientists with actual credentials whose research has gone through the rigorous scrutiny that academic research is subjected to. We need to understand that what we read online is usually not science and always fact check what we hear, especially from our leaders. It's the only way to ensure that governments deal with problems in a meaningful and effective way – rather than a populist manner that makes headlines but does nothing.



We need the help of science, and it needs our help too. Only by lending our voices to science can we make our leaders listen to facts and make the right decisions not just for our countries and societies, but also for our species. So please, always fact check what you hear, and be vocal about these issues and supportive of those that are at the forefront of this battle.

So, today, the 14th of March, as you go to a Pi Day celebration and “raise a pie for Pi” and remember that Pi is more than just a number. Remember that just as we needed scientists to discover the numerical coefficient of Pi for the betterment of mankind, we need them today to ensure our prosperity in the years to come.



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If you want to learn more about Pi's role in our world, we recommend listening to Physics lectures at a University near you or through online lectures that many institutions post online for free.

*From our family to yours we are  
wishing you a*

**Happy International Pi Day!**

**Go on and celebrate, raise a glass and eat a pie with your friends and family. But don't forget the importance of Pi (and pie), make sure to spread the knowledge of its importance around the world!**



2020

