

Math, Me and the Milky Way

An attractive insight into applications of Mathematics

The Stimulation 10.0 module titled – ‘Math, Me and the Milky Way’ was received enthusiastically by the students of Stds. X-XII on August 27th 2020 when it was sent to them via google drive, put up on their class WhatsApp groups. The very title struck a personal chord with the students who enjoyed the contents thoroughly. “We are all gifted with a natural key to unlock the magical secrets of the universe” said Mrs. Sheela Rajendra, the Dean and Director and Correspondent of the institution , in the introductory message . This delightful 22-minute video created by Mrs. L. Kalpagam, senior Mathematics teacher in PSBB Nungambakkam with a pleasant voice over by her , provided useful insights into the various applications of mathematics both in nature as well as man-made creations.

The students were taken on a virtual journey to explore the omnipresence of Mathematics and appreciate its intricate beauty . The idea of learning concepts outside the school curriculum motivated students to watch the entire video. According to Elizabeth Neiman, the Vice President of Engagement at Mind Research Institute, California, ‘Anyone can be a math person, if they don’t just learn it, but experience it’, The video helped the students realize this quote by actually helping them to experience mathematics.

‘Statistics is the grammar of science’- a quote by Karl Pearson highlights just how true this is. Mathematics is widely used in statistics. Mathematics has wide use in various fields ranging from communications to microbiology. Just as it is useful in the micro sciences, it is important for astronomical calculations because of which humans have been able to send satellites into space. War strategies, travel websites, videogames, textile designing and photography are also based on Math calculations! ‘Every form of music is defined by Math’ and every aspect of communication as well!

The fact that ‘Mathematics is instinctive in living organisms’ was explored in detail. While driving up a slope, the amount of force needed to be applied to overcome gravity is instinctively known by the youngest of children as they learn to drive a bicycle. The time taken to reach school, the apparently perfect spacing of classes in a student’s timetable, real-life permutations like seating arrangements- all use mathematics for best results!

The role of Mathematics in medical sciences was also highlighted. Techniques like Radiology which have played a big role in treating cancerous cells are actually a result of complex calculations. Speculation of election results actually uses ‘probability’ ! The ‘beautifier apps’ so widely used today use ideal face ratios to make one’s face look more appealing. The piece of information that caught the students’ attention in particular was the relation of math with movies! Students were surprised to find out that in the movie ‘Moana’, many hours were spent on doing complex calculations to find the correct trajectory of the waves!

The use of 'Probability' in E-commerce was an eyeopener as well. Most recommendations on online shopping sites are based on one's web searches alone! The weather forecast is also done using time-consuming calculations. Perhaps the most interesting application of mathematics is its occurrence in nature. The Fibonacci sequence is the most recurring pattern occurring in a variety of objects like pine-cones. The 'golden ratio' is defined as the ratio between two consequent terms and this sequence has numerous applications in architecture as well. Architectural marvels like the Early Fractals at Khajuraho are the products of mathematical deliberations!

The sheer number of uses Mathematics has in everyday life astounded the students, who also understood that 'Every thought, action and mental process needs Math!' The module took the students on a memorable, colourful and informative 'numerical journey' indeed, helping them to appreciate the mapping between humans and the universe 'in the path of patterns', enabling them to 'experience the Omnipresence of Math'!

