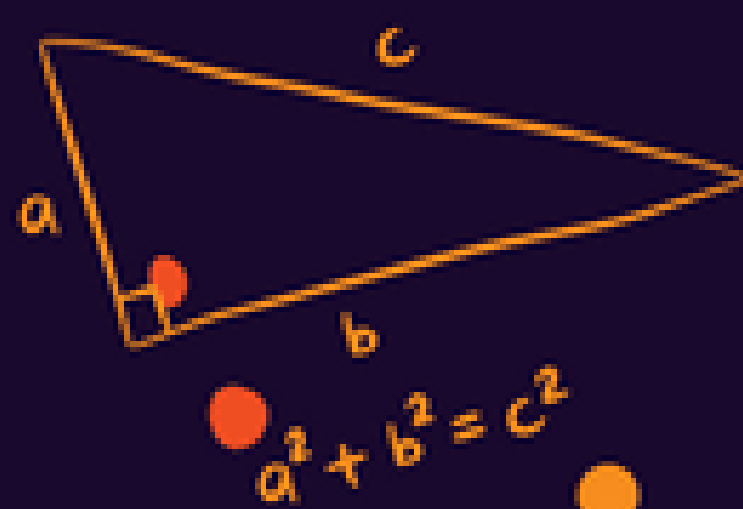
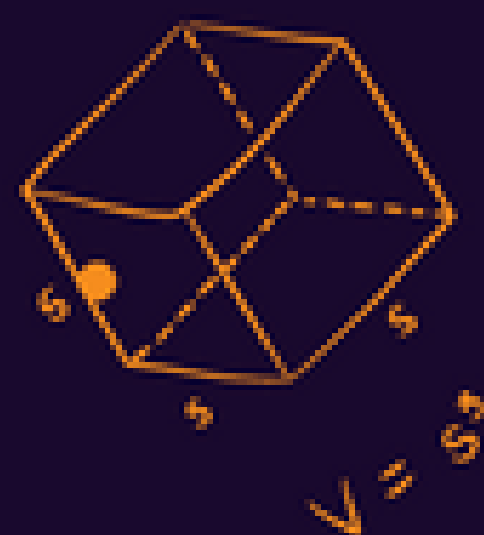


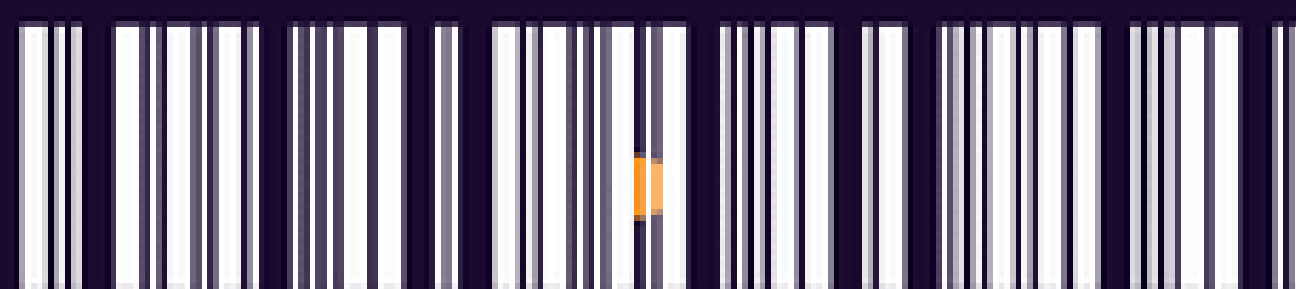
MATHOSCOPE 2022

Bal Bharati Public School, Noida

3.0



Every year, BBPS NOIDA publishes the annual Math magazine Mathoscope which is filled with a wealth of mathematical information.





From the Principal's Desk

Mathematics is the language of computations. The study of structure, space, pattern, and conjectures makes it magical as an all-pervasive and all-encompassing subject. Beginning from the stars, moon, and the universe, from the ancient to the modern, this subject is the atom of everything. Tracing back to the history of the subject speaks volumes about its importance. When we assess and evaluate the subject, we may say "Friends are like limitless functions separately, but together they become a constant function. Teachers are synonymous with integration as they increase the capabilities of a constant student with their knowledge and magnify a student's capabilities."

So, here we welcome you all to this magazine that features a panorama of activities. With the mathematical analysis of the need to ban plastic, and how to detect earthquakes through mathematical calculations, students also highlighted the power of zero. Opening up a new gamut that harps upon the importance of Actuarial Sciences, we marched through the pages that speak about biomimicry and prime numbers. Taking this language of computation as experiential learning, articles on numbers intertwined with dance and games, speak volumes about Mathematics as an all-pervasive genre in learning.

We may thus say.....

Ms. Asha Prabhakar

“

“Mathematics is a subject that helps project all computation and predictions, language of estimation with adding, subtracting, multiplying and totalling. This will always helps in ciphering a new knowledge, that helps carve an edge of perfection beyond limitation.”

”

ACTION RESEARCH

SINGLE USE PLASTIC BAN



A plastic bag ban is a law that restricts the use of lightweight plastic bags at retail establishments. Problems associated with plastic bags include the use of non-renewable resources, difficulties during disposal, and environmental impacts. So calculating our plastic ban observation and spreading awareness among the students, a group of class VIII students of BBPS Noida conducted an action research. Through this research, we tried to calculate the observations of our students and analyze the data to understand our impact on the environment.

STEP 1

Collection of data - we created a Google Form to collect details and personal choices of the students which leave an impact on the plastic ban on earth. We asked various questions like usage of plastic and yearly purchases were asked through the form

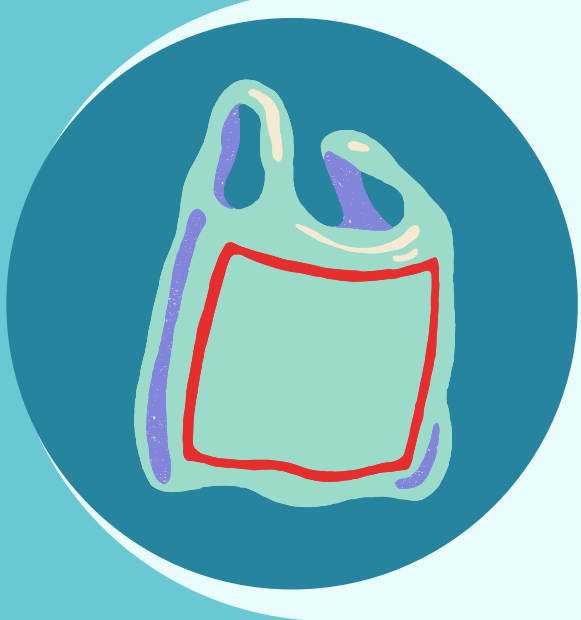
CLICK BELOW:

[HTTPS://FORMS.GLE/vcnstfrwzr5urlux8](https://forms.gle/vcnstfrwzr5urlux8)



Survey Question

SINGLE USE PLASTIC

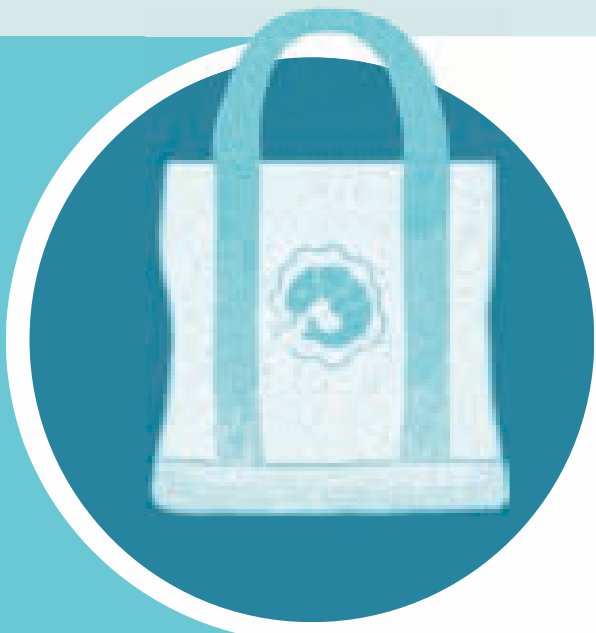


1. Did the rate of consumption of plastic bags in your household increase or decrease per week after the ban?

It was crucial to determine whether or not the ban was even useful at home

2. Do you think that society has enough information about the dangers of plastics bags?

This question might enable us to gauge the level of awareness present in society.



3. How often do you find plastic lying around in your surroundings?

Has the situation changed since the ban, or is everything still the same? The results are fascinating.

4. Do you separate biodegradable and non-biodegradable wastes?

Many people don't separate different types of waste. This helped us comprehend the current situation.



5. Do you think other than single-use plastic any other kind of plastic is harmful too?

It was crucial to learn what people thought about plastics besides single-use plastic.

Fill the form:

<https://forms.gle/vCNSTFrWZR5urLux8>

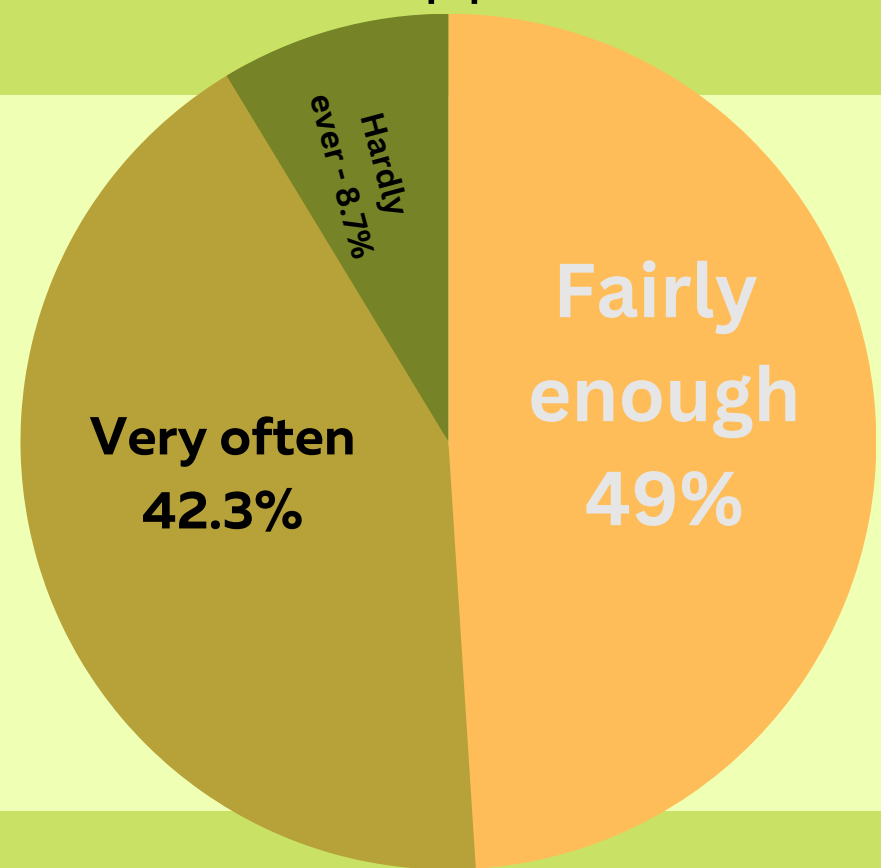
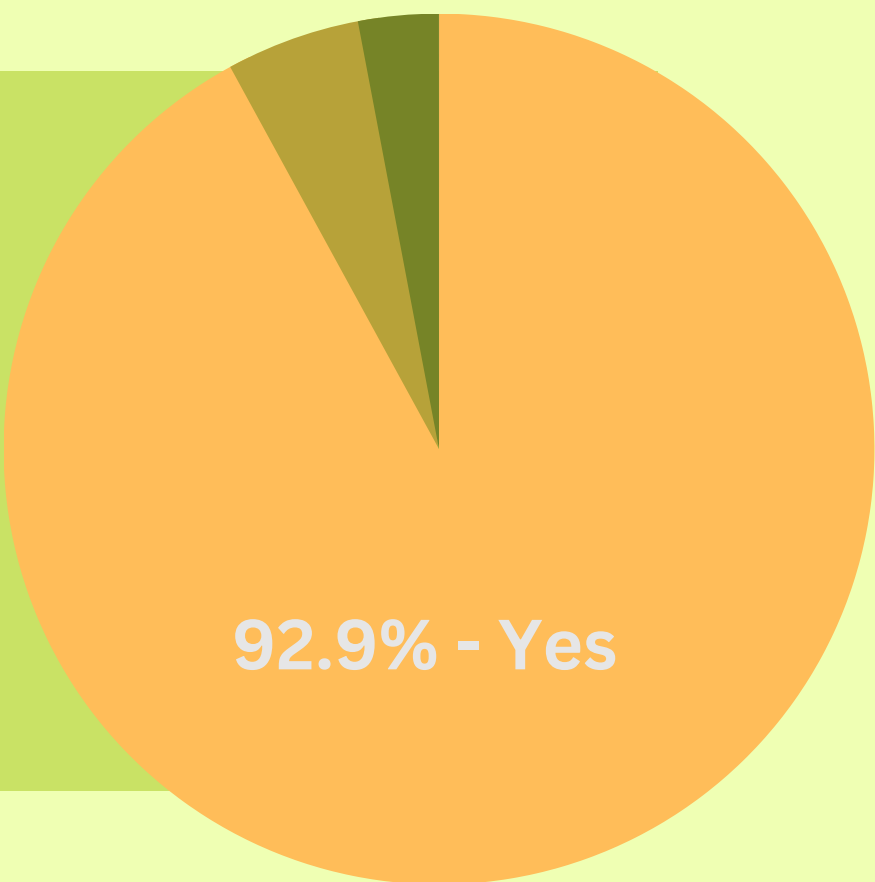
Created by -

**Bhoomi Chauhan(VIII-B) and
Kashvi Adhikari(VIII-E)**

GRAPHICAL ANALYSIS OF SURVEY

Do you support the ban?

India produces 3.6 million tonnes of plastic garbage, of which 50% is recycled and still a lot of people do not support the ban!

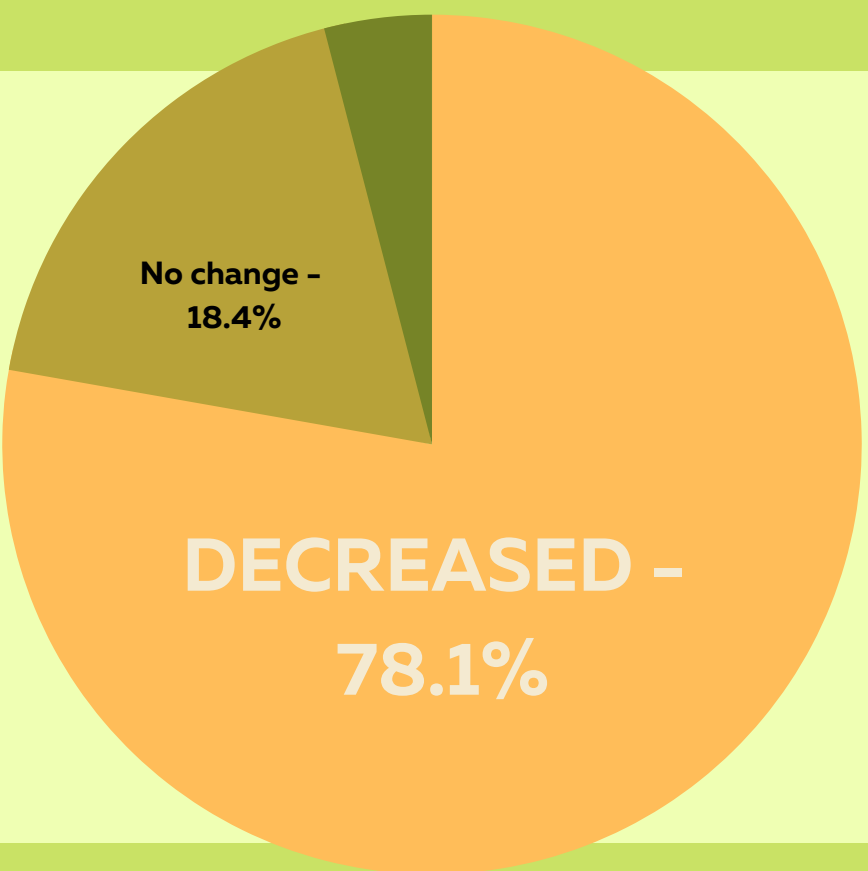
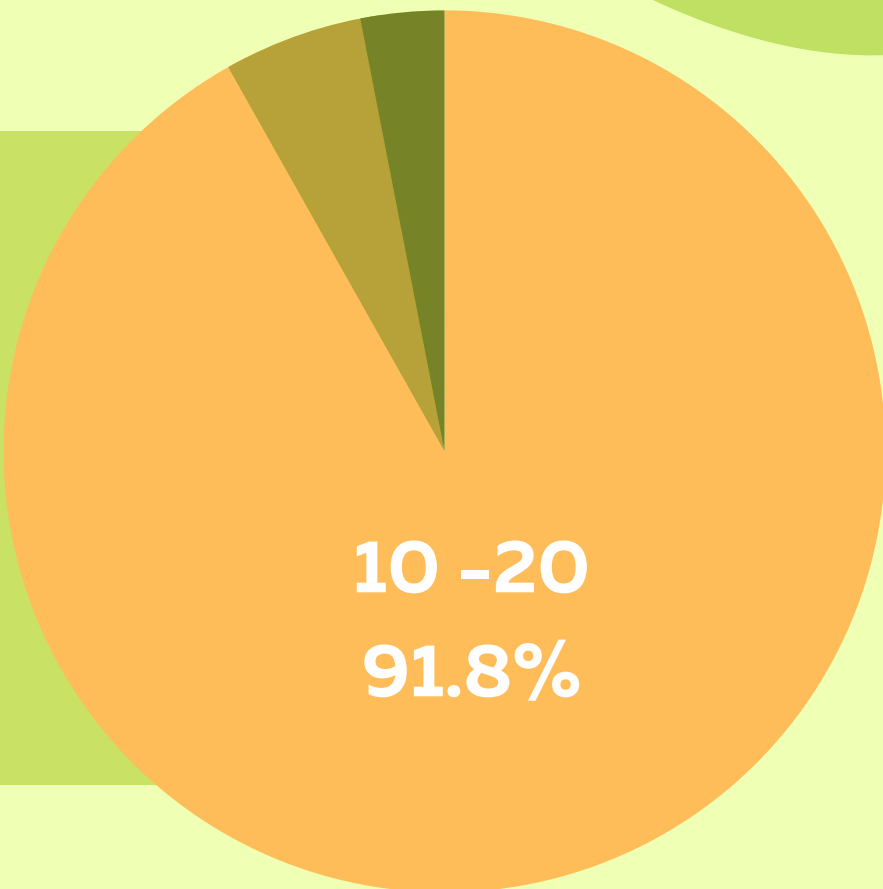


Plastic in surroundings?

We frequently encounter plastic in our surroundings, and the survey also confirms this.

Plastic bags per week:

We asked how many plastics bags are being used in the house per week and the result was: 10-20: 91.8%, 30-40: 5.1%, 40 or more: 3.1%

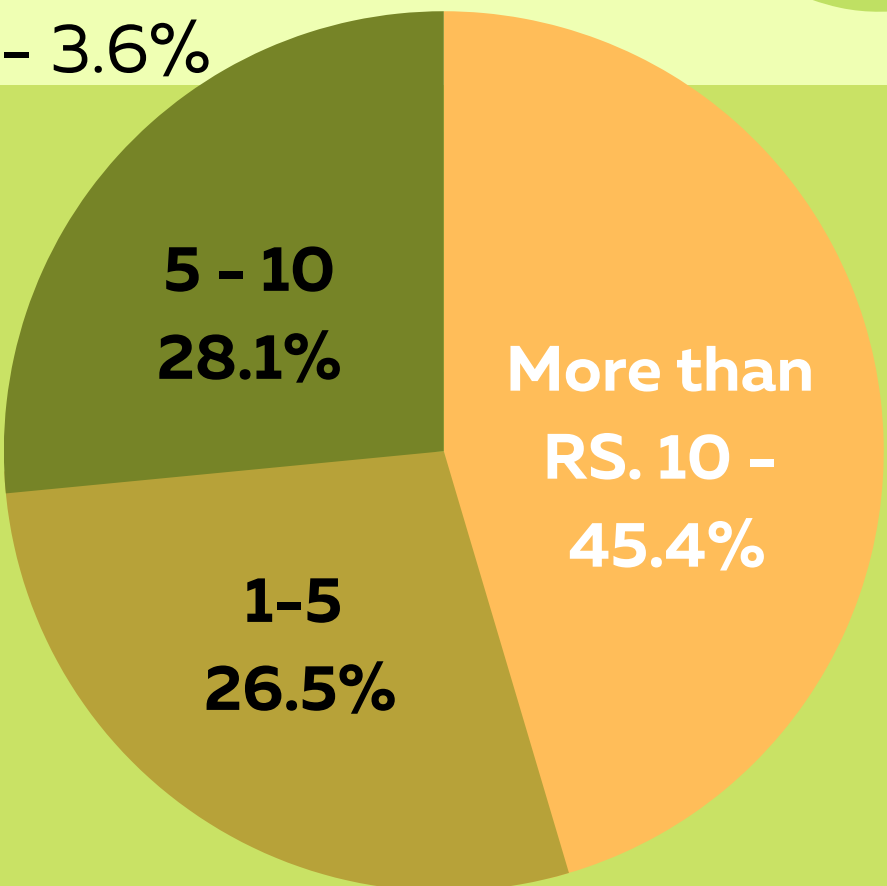


Plastic bag usage:

A survey stated that it was crucial if the use of plastic bags decreased or increased, as a result, was: Decreased - 78.1%, No change - 18.4% , Increased - 3.6%

Ideal Charge for plastic bags?

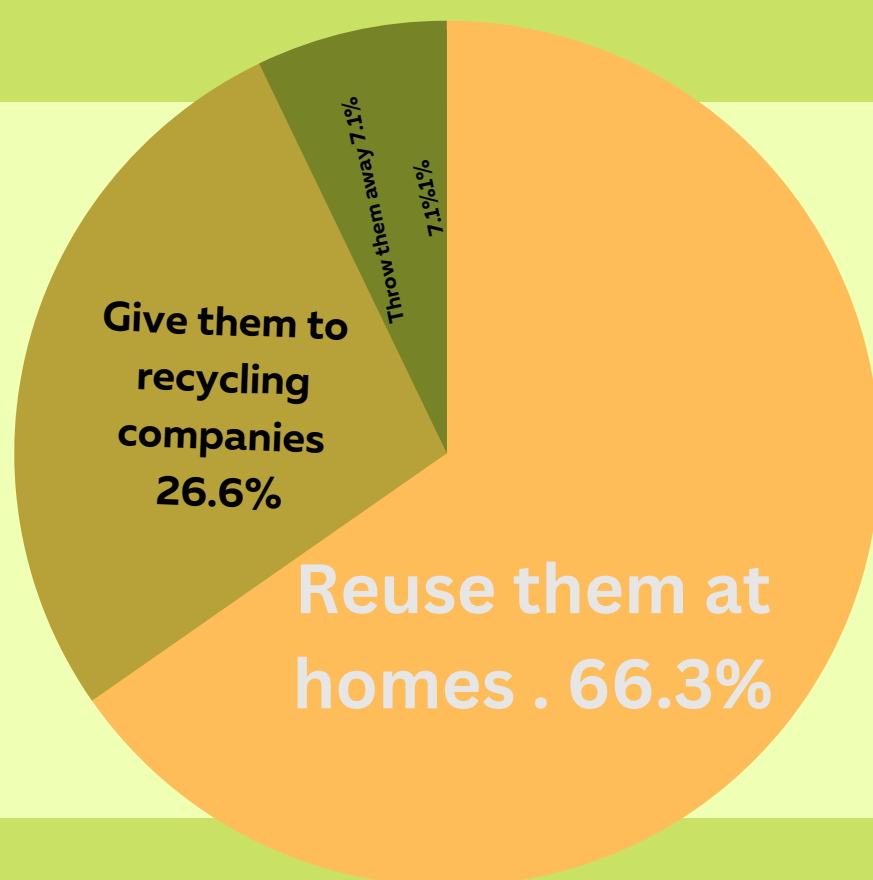
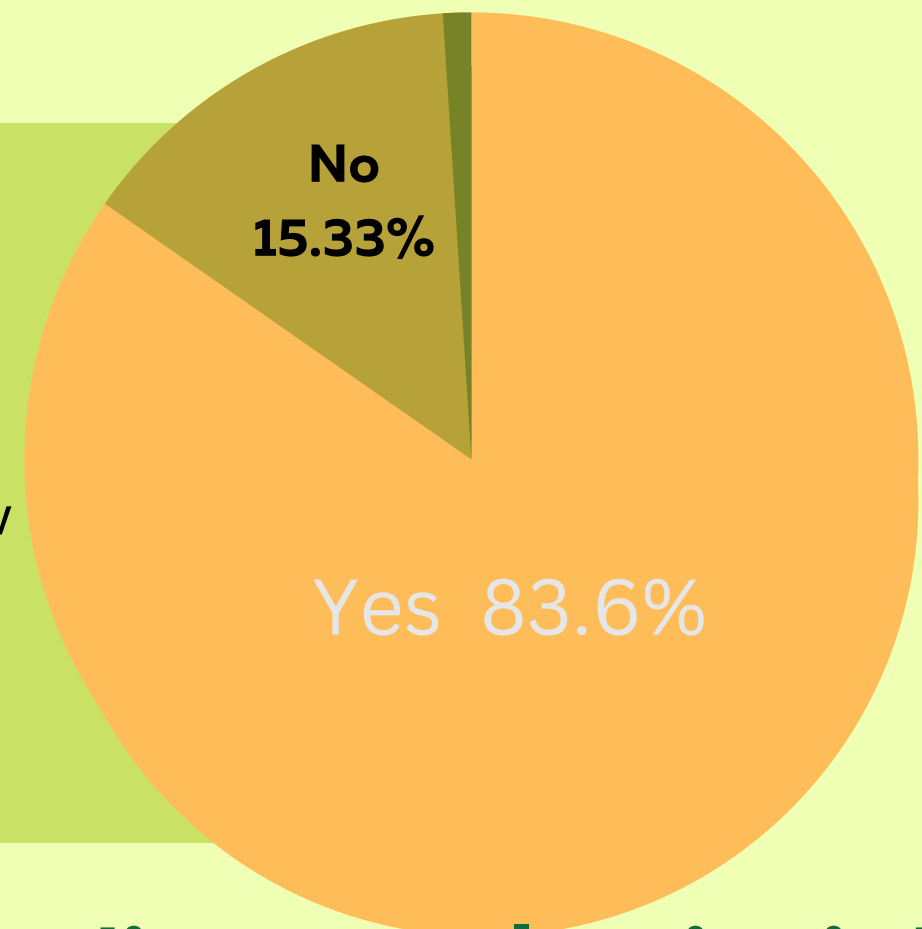
We also got to know people's opinion on the money they are willing to pay for a plastic bag: More than Rs. 10 - 45.4% , 5-10 - 28.1%, 1-5 - 26.5%



GRAPHICAL ANALYSIS OF SURVEY

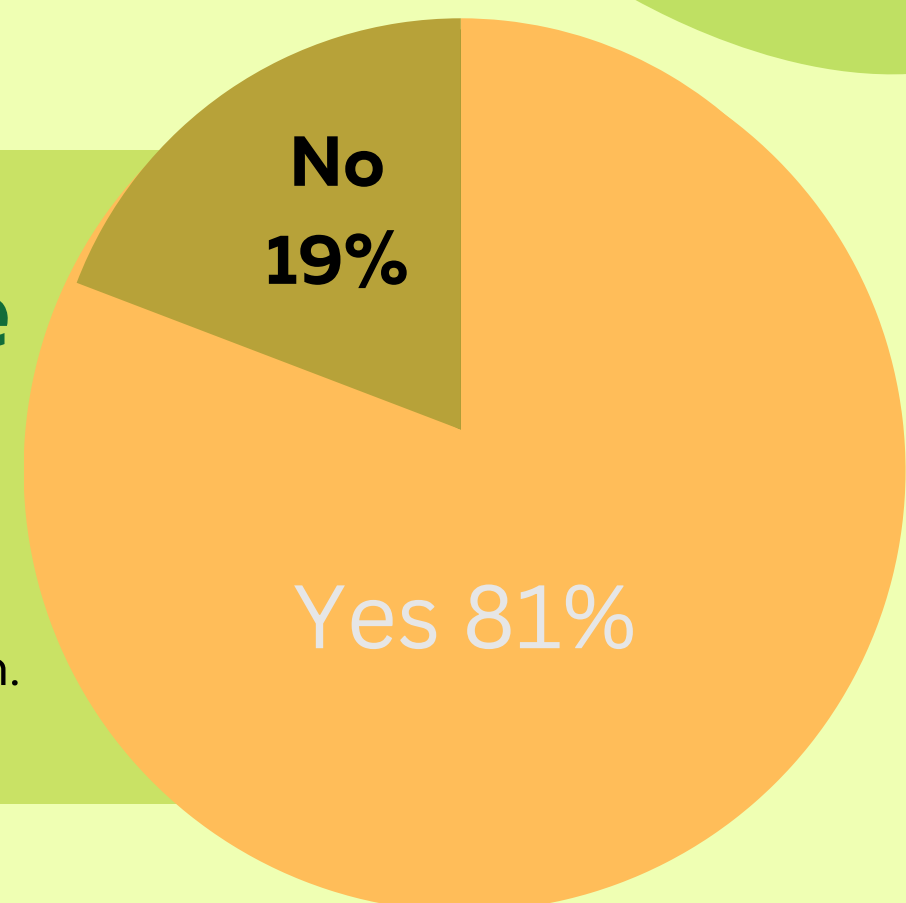
Do other plastics harm?

Low-cost, lightweight, and resistant, plastic has benefits we cannot deny. But, unfortunately, we now see the consequences of our intense use where it negatively impacts nature



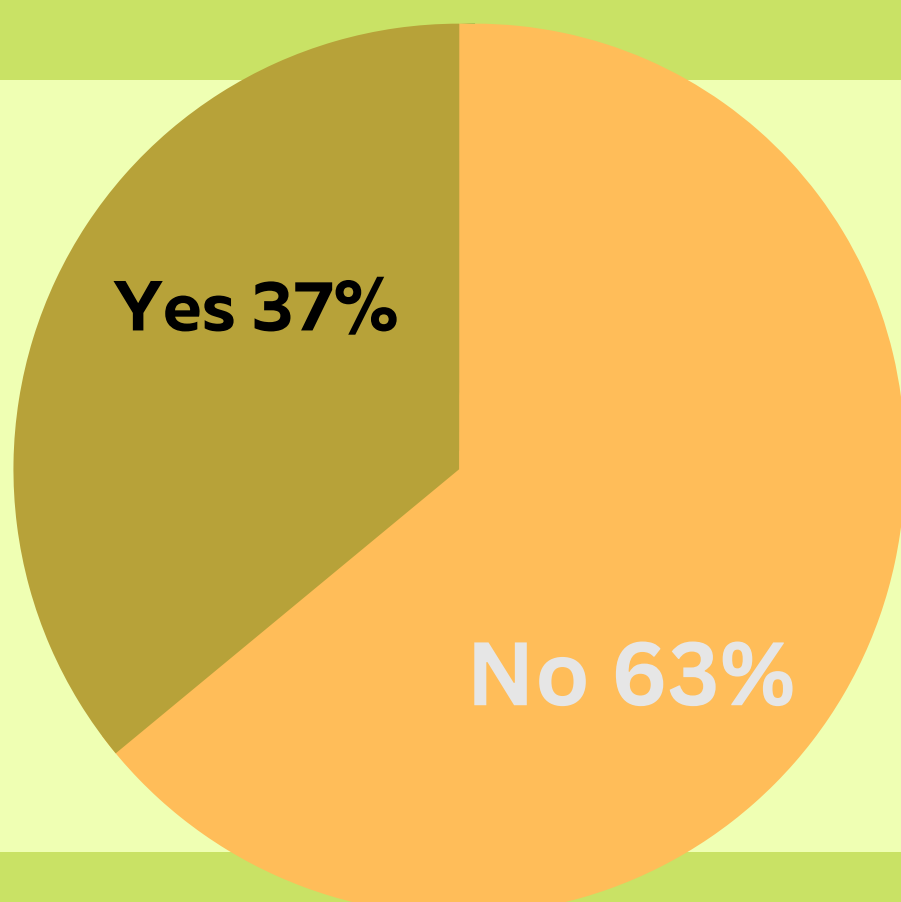
Is your way to dispose plastic right?

Plastic bags, as well as some plastic wraps, can be recycled, just not in the curbside bin. In most cases, you have to recycle these items through a store drop off, although some communities allow curbside recycling.



Separation of different waste

First, know what trash or garbage that can be recycled and which ones can not. Then the nonbiodegradable wastes can be separated or segregated into paper, plastic, metal, and glass. This is called waste segregation.



Is the society aware about it?

Plastic bags are a major cause of environmental pollution. Out of 10 only 3 are aware of it, thereby highlighting the alarming situation.

Data Analysis by Aayushi Balsara (VIII-A),
Arun Kumar (VIII-E) and Khyati (VIII A)



Algebra is used in computer programming to develop algorithms and software for working with math functions. All programming languages require aspects of Math to work, from defining and creating arrays to complex numbers, calculus, etc.

Linear Algebra is the language of machine learning. The heartbeat of the computer is in Linear Algebra. This branch of Mathematics provides concepts crucial to many areas of Computer Science, including Graphics, Image Processing, Machine Learning, Computer Vision, Optimization, and Web search. It uses concepts like drawing shapes, matrices, sets, equations, etc.

Math in Coding

In programming, graphs are very important aspects of developing a Graphical user Interface, or making any software, to ensure the placement of the elements in the right spot, in game development, and in many other fields of coding. Like, defining the screen size in tkinter, defining the row, column, pad, pygame, scaling image, setting display, etc. to complex mathematical commands.

Math in Detecting Earthquake

In a project named ELDS (Earthquake Landslide Detection System) made by Naitik Das, an accelerometer was used to detect earthquakes.

An Accelerometer is a component that basically detects changes in coordinates. Coordinate Geometry is used in coding and making of this component.

Basically, this project detects earthquakes by changing the coordinates of the accelerometer buried deep in the ground. The coordinates of the accelerometer will change slightly during earthquake P-Waves and then it will detect the change in coordinates and give people an alarm siren and give them the crucial minutes to prepare for the S-Waves.

So Math can be used to save lives.

By -Naitik Das (IX-A), Anant Gupta (IX-A) and Nilesh Kumar Srivastava (IX-A)



THE POWER OF ZERO

Zero is a strange but oddly fascinating number. Multiply it with another number, and it will turn it into absolutely nothing. Divide another number by it, and it will turn it into infinity. As physics has always been based on math, zero can be responsible for some of the strangest things observed in the physical world. Its power affects both the great and the small worlds of general relativity and quantum theory.

In the realm of general relativity, zero appears at the centre of black holes. Black holes are one of the wildest things in the universe. They are the remains of huge stars. Even light cannot escape the gravity of a black hole. It is so strong that being inside a black hole can trigger a process called “spaghettification” which can even rip one’s atoms apart.

At the centre of the black hole, there is a point called a “singularity”. The term singularity is often used to describe places or situations where our normal laws and logic do not apply. The culprit here is zero.

Density is defined as mass per unit volume. As the singularity in a black hole is a 0-dimensional point, the volume is 0. Anything divided by 0 is infinite. If the volume is 0, then no matter what the mass, mass/volume will always be infinity. Hence, the singularity of a black hole has infinite density, which should not be possible, but our equations say it is.

New physics may lie at the heart of black holes, but for now, we know very little about these places, and all we can say about them is that they are extraordinary.

In the world of quantum physics, which governs extremely tiny particles, zero makes sure that even a vacuum has some amount of energy.

This is possible because of the Heisenberg Uncertainty Principle. Discovered by Werner Heisenberg in 1927, this law states that you can never know the precise position or velocity of a particle. In fact, the more accurately you know the position, the less accurately you will know the velocity, and vice-versa. This law is one of the foundations of quantum theory and is extremely important

Imagine that you have an extremely tiny box. You will know the position of the particles in the box accurately to some extent, as those particles will obviously be inside the box and not outside of it. The smaller you make the box, the more accurately you know the position of these particles. But as the Heisenberg Principle says, if you know the position of those particles well, you will know absolutely nothing about their velocity. Velocity here is also often used to refer to energy. That means that no matter where you put the box in your room, in the middle of a desert or even in a vacuum, there is always some uncertainty about the amount of energy present there. This means that any amount of energy could be present in any place in the universe, even in the emptiest vacuums. This has led people to believe that this could also mean that even a vacuum could have infinite energy. This concept of the power of nothingness is known as zero-point energy.

Zero-point energy has already been tested. In 1948, two Dutch physicists used zero-point energy to slightly crush two gold plates. This force could not be observed with the naked eye because it was very small, but they were able to measure it. This showed that even nothing had some energy. We are a long way from harnessing this power, and we are not even sure if it is possible to harness it, but we are quite sure that it exists.

Although zero represents absolute nothingness, it is responsible for the strangest paradoxes, from infinite density to infinite energy. It has been a concept for around 2,000 years, but we still have not completely figured it out. It is a truly mysterious number.

Mathematical

MODELLING

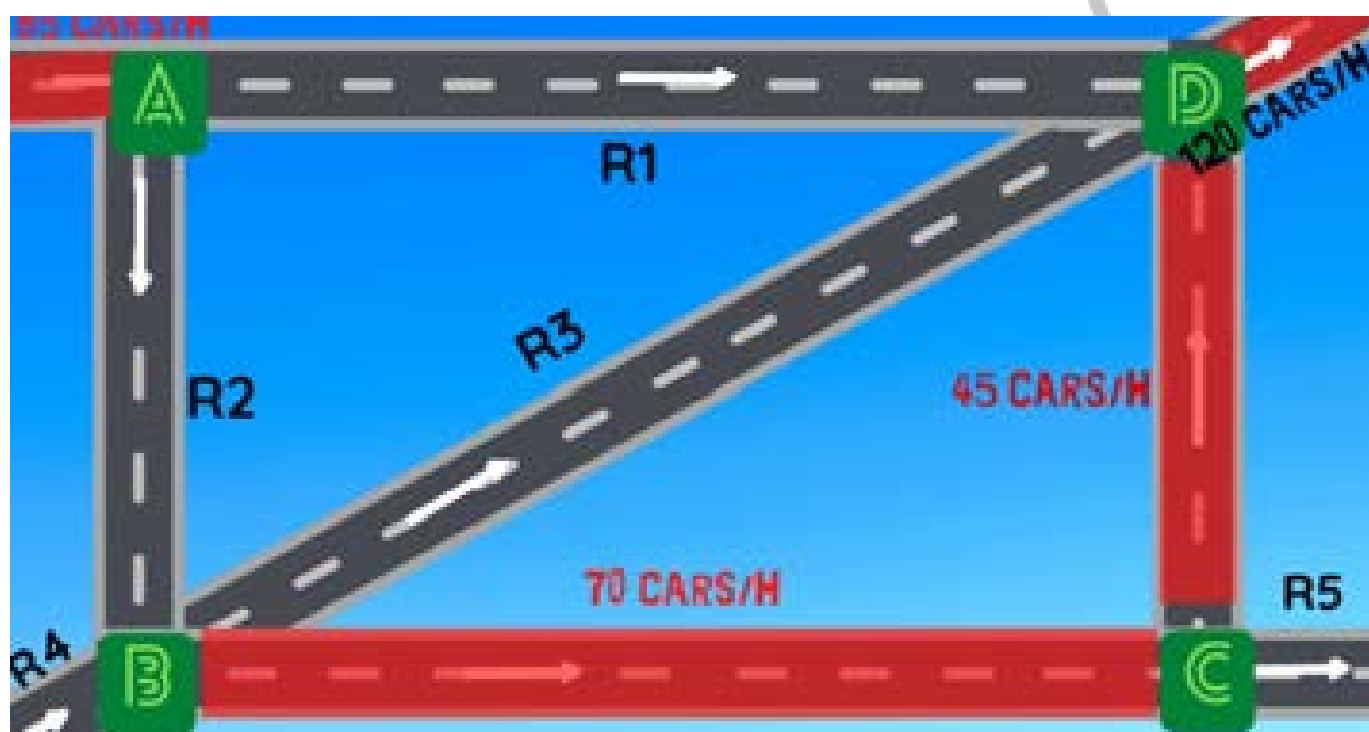
The Problem:

Development in the automobile industry, causing a rise in traffic problems.

Traffic is the movement as of vehicles and pedestrians through an area or along the route.

Traffic Problem arises when many vehicles commute at the same time and cause congestion on the road.

We are calculating the total number of vehicles entering in a road network and the number of vehicles exiting it.



By linear equality

$$R_5 = 25$$

$$R_4 = 35 + R_5 \rightarrow R_4 = 60$$

Final Values

$$\begin{aligned} R_1 &= 75 - R_3 \\ R_2 &= 10 + R_3 \\ R_3 &= \text{free} \\ R_4 &= 60 \\ R_5 &= 25 \end{aligned}$$

$$\begin{aligned} 85 + R_4 &= 120 + R_5 \\ 85 &= R_1 + R_2 \\ R_1 + R_3 + 45 &= 120 \\ R_2 + R_4 &= 70 + R_3 \\ 70 &= 45 + R_5 \end{aligned}$$

$$\begin{aligned} R_4 - R_5 &= 35 \\ R_1 + R_2 &= 85 \\ R_1 + R_3 &= 75 \\ R_2 - R_3 + R_4 &= 70 \\ R_5 &= 25 \end{aligned}$$

	R_1	R_2	R_3	R_4	R_5	
①	0	0	0	1	-1	35
②	1	1	0	0	0	85
③	1	0	1	0	0	75
④	0	1	-1	1	0	70
⑤	0	0	0	0	1	

matrix

$$\begin{aligned} R_1 &= 75 - R_3 \\ R_2 &= 10 + R_3 \\ R_3 &= \text{free} \end{aligned}$$

The Conclusion:

Through this method, we can calculate the number of vehicles in and out at each junction. If there is a severe traffic problem at any point, the authorities can take action by blocking any of the exit points as shown in the picture. In this Mathematical modeling, we tried to identify a real-world problem and to find a logical method to solve the same.

Aarushi Mehta (XI-B) and Nilesh Kumar Srivastava (IX-A)

ACTUARIAL SCIENCE- INTERSECTION OF BUSINESS AND MATHEMATICS



"Risk is unavoidable. To succeed, you must learn to embrace it."

Actuarial Science is a profession concerned with the application of mathematical, statistical, and financial theories to solve business problems. These problems involve analysis of future financial events- especially when, involved are future payments that have certain or uncertain timings. It is also used in the designing of insurance products, valuation of financial contracts, and modeling of mortality and morbidity rates. Actuaries use mathematics and financial theories to formulate and review insurance policies to ensure earning maximum profit. For example, car accidents in a year can be predicted by looking at the percentage of people involved in the accidents and the damage caused by car crashes in previous years. Based on the data, an actuary identifies a pattern and uses it to predict the car accidents in that particular year. Actuaries also identify the amount each person should pay as a premium for their insurance, such that it covers the damage of the car crash. Apart from analyzing financial risk and uncertainties in insurance and related businesses, actuarial science is a major boon. It fosters the development of a nation as it helps to assess risk in future events by using mathematics, statistics, and financial theory. This helps decision-makers in developing policies that reduce, manage, or transfer that risk.

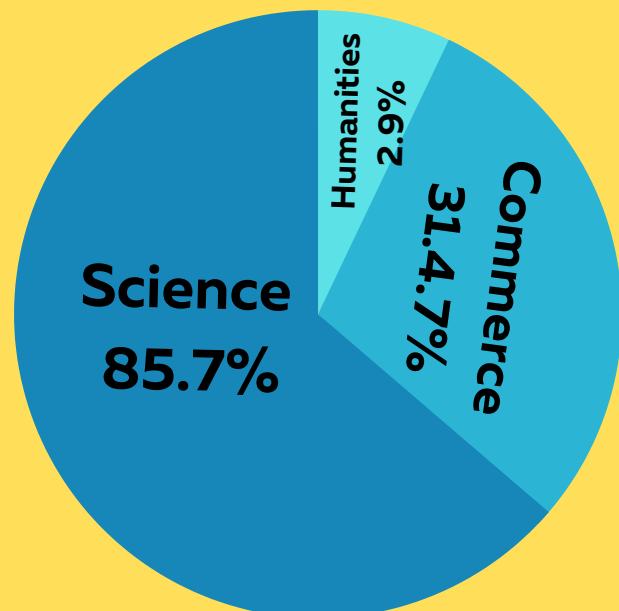
Diploma in Actuarial Science covers aspects of mathematics such as meaning of mathematics and its use in daily life. Courses in actuarial science cover financial and actuarial mathematics, probability, and actuarial modelling.



Apart from this, additional courses in finance, economics, computer programming, and accounting can also be done with actuarial sciences. Along with these, critical thinking skills and analytical skills are also enhanced through this.

DATA ANALYSIS: ACTUARIAL SCIENCE

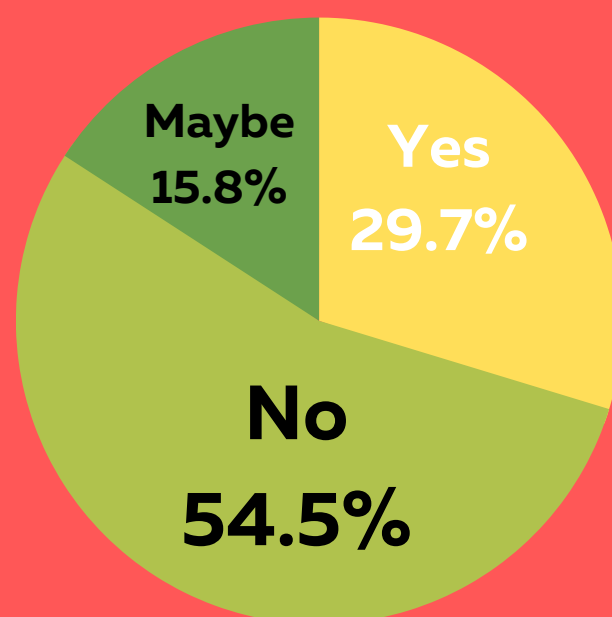
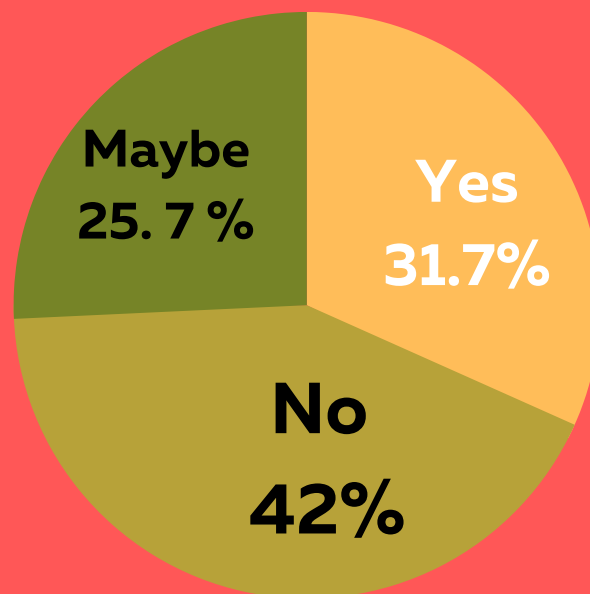
STREAM RELATED TO ACTUARIAL SCIENCE ?



This survey highlights some intriguing information. It states that 85.7% of the population opts for science, 31.4% takes commerce, and 2.9% pursue humanities.

IMPORTANCE OF MATHEMATICS IN ACTUARIAL SCIENCE.

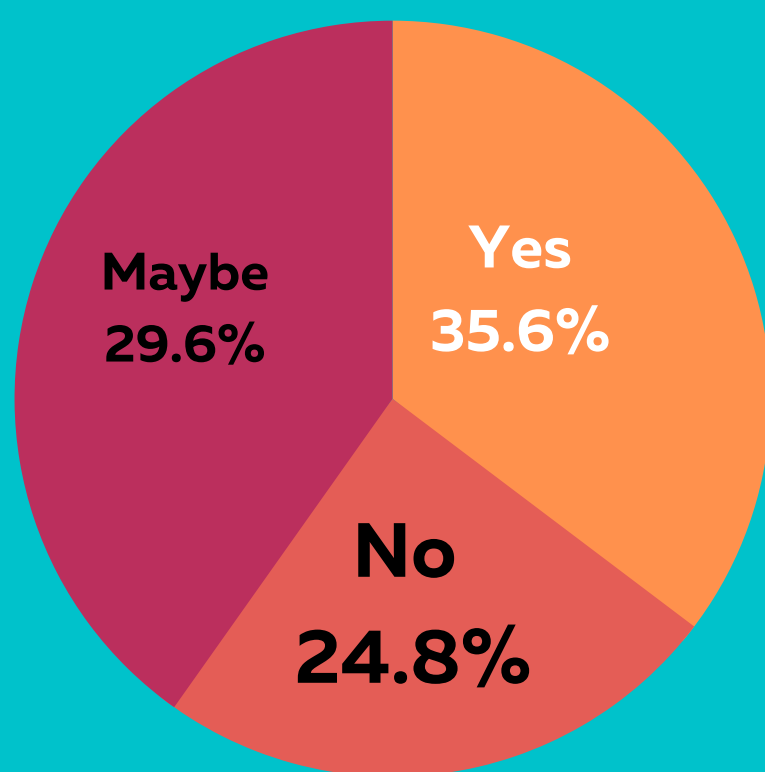
Actuaries use mathematics to measure and account for risk in insurance and related businesses.



AWARNESS ABOUT ACTUARIAL SCIENCE ?

As is evident, the vast majority of students are ignorant about actuarial science.

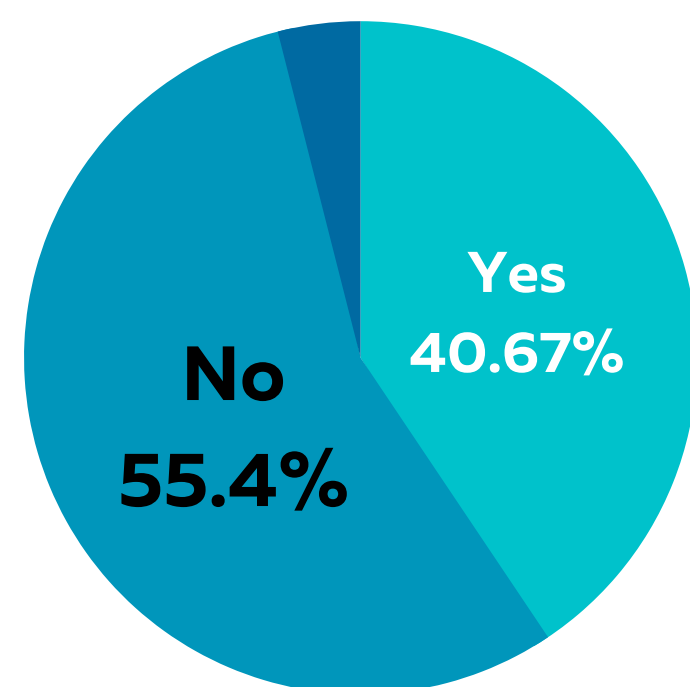
DOES EVERY MEMBER OF YOUR FAMILY HAVE AN INSURANCE COVERAGE?



Using mathematical and statistical techniques, actuarial science evaluates financial risk in the insurance and finance industries. The field of actuarial science uses probability and statistics mathematics to describe, examine, and resolve the financial ramifications of unknown future events.

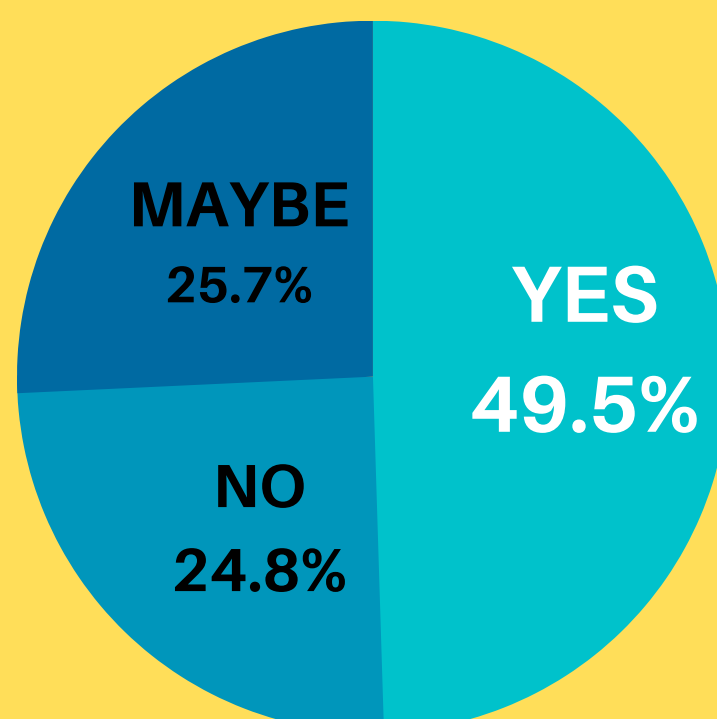
ACTUARIAL SCIENCE ASSESS FINANCIAL RISK IN A INSURANCE AND FINANCE FIELDS USING MATHEMATICAL AND STATISTICAL METHODS

One of the most common reasons that can make people unhappy is waiting. When you wait for happiness thinking you'll be happy when you hit a goal, you deny yourself the ability to be happy in the present moment.



CREATED BY-
MEHAK SHARMA (XIC)
DIYA PALIWAL (XIC)

DO YOU HAVE AN INSURANCE POLICY?



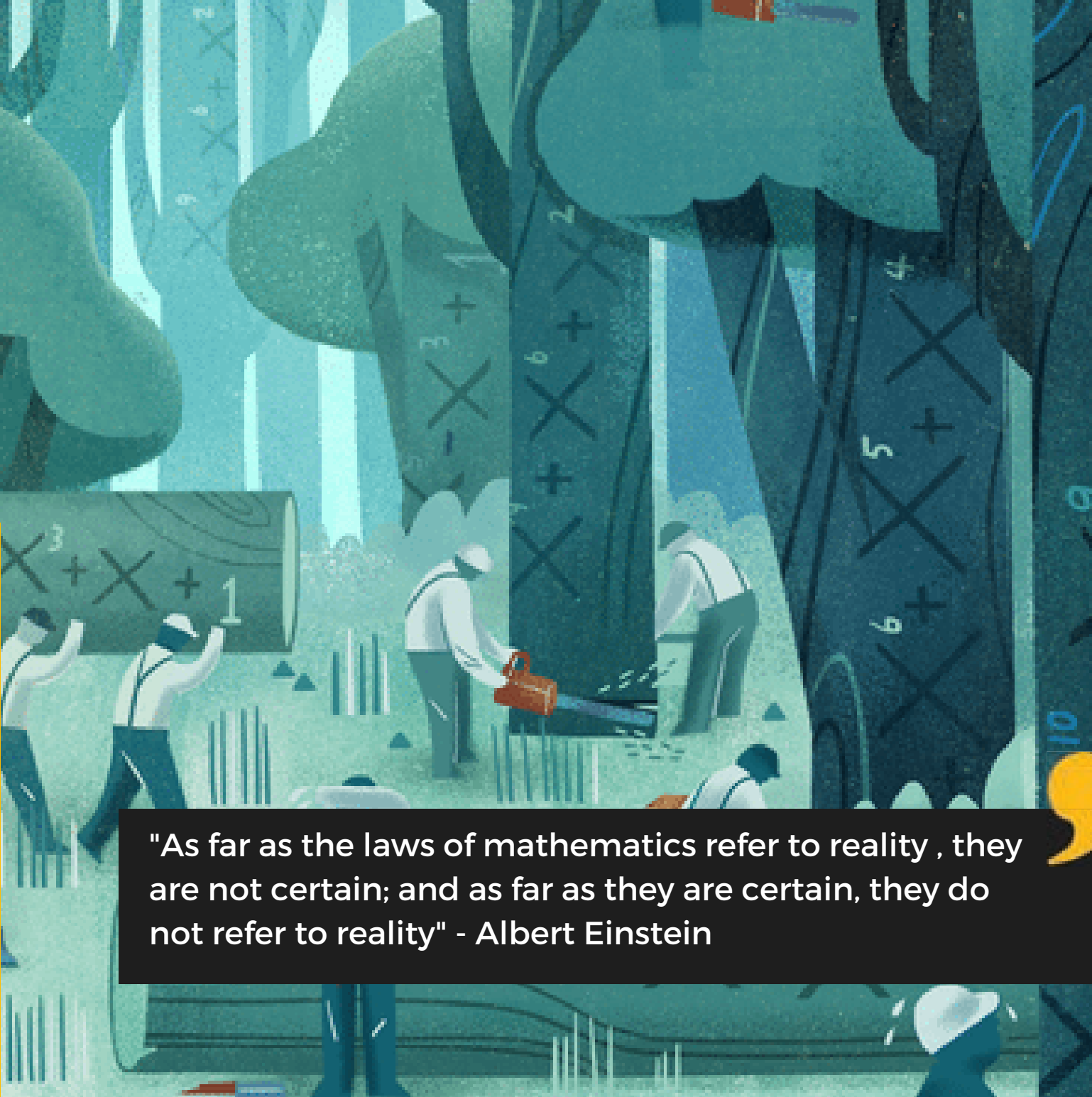
It offers you financial support for your damages and losses. All sorts of insurance coverage serve the fundamental purpose of preventing damage to the insured by enlisting the help of numerous persons who are willing to pay to assume their risks. The fund is additionally employed for capital generation through market investing.

PRIME NUMBERS

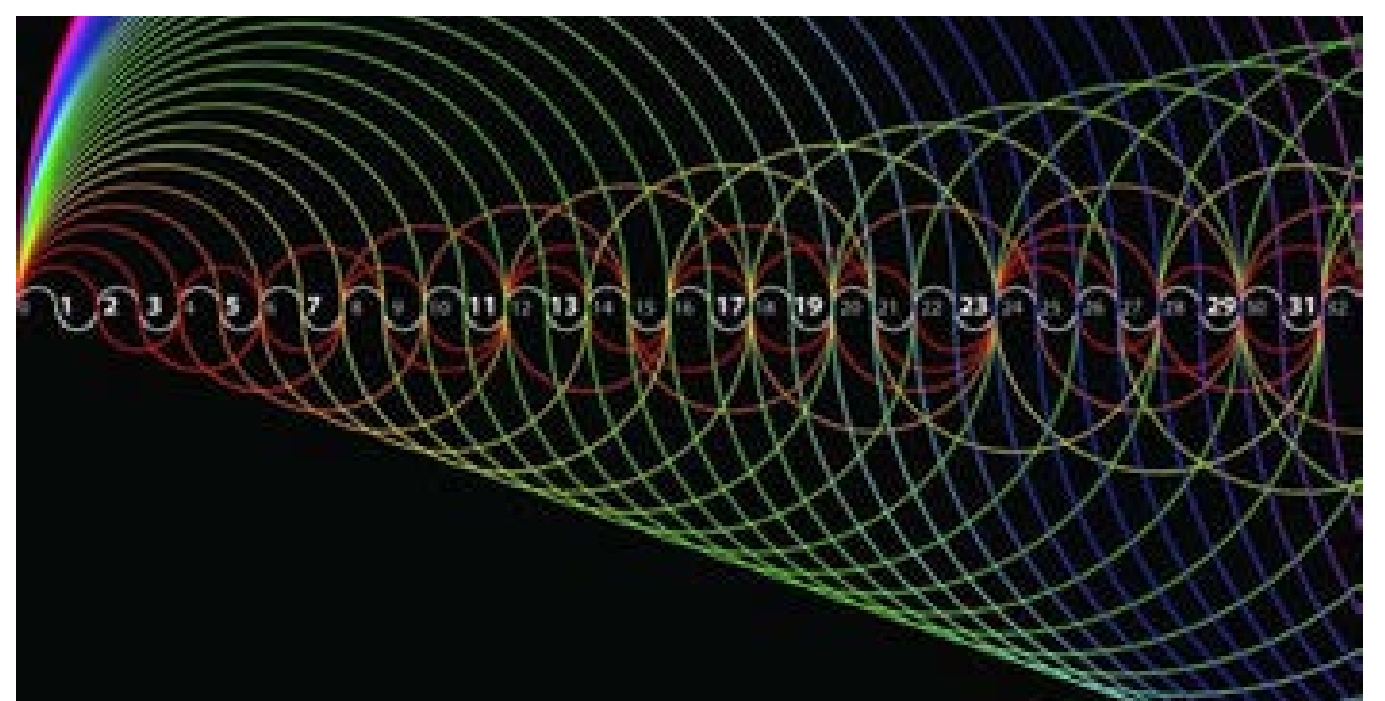
Prime numbers are notorious among high schoolers as they make maths unnecessarily complex. Well, you'll be surprised to know that hackers also share this opinion. Encryption is very difficult to do right. Unless you can meet the receiver of information in public, to share some sort of private key, it becomes almost impossible to share data privately over the internet. The complexity of prime factorization of any number is the concept that forms the backbone of modern encryption. RSA Encryption method, which is widely known and used, is one such example. If we have to visualize this method, we can imagine that the receiver of the information distributes a bunch of locks to the public. Now, the sender of information just has to lock the content of their message using the lock and send it to the receiver who can just use one key to unlock the message. In this method, any nefarious actor can't have access to the information at any stage and the receiver can use one key only, thus reducing complexity. The method is as follows:

In step 1 of this method, the receiver of the information first chooses two unique and large prime numbers, say p and q . Their product i.e., $p \cdot q = n$ will be half of the public key.

HARDIK JINDAL XI B



"As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality" - Albert Einstein



"AN EQUATION FOR ME HAS NO MEANING, UNLESS IT EXPRESSES A THOUGHT OF GOD."
SRINIVASA IYENAGAR RAMANUJAN

Now, using the conversion method (ASCII for example) the message can be converted to the original message. This method works great with our current technology but as humans start adopting quantum technology, this method will become obsolete as quantum computers can calculate all of this very quickly as compared to conventional computers. So, the future of cryptography is both a scary and an interesting one.

The top half of the page features a vibrant, stylized illustration of a maze. The maze is composed of light blue and yellow paths that wind through a dark blue background. Various types of trees, including tall, thin cypresses and rounded, bushy trees, are scattered throughout the maze. Several small figures of people, each holding a glowing torch, are positioned at different points within the maze, suggesting a journey or exploration. The overall aesthetic is modern and artistic.

The Magic of

BIOMATICS

Mathematics plays a key role in many disciplines of science, primarily as a mathematical modeling tool. A variety of mathematical techniques are used in biology to model biological research.

Mathematical areas such as calculus, probability theory, statistics, linear algebra, graph theory, combinatorics, algebraic geometry, topology, dynamical systems, differential equations, and coding theory are now being applied in this field.

Many topics from biosciences have been a high priority on the global agenda; the fights against cancer and degenerative diseases of the brain, such as Alzheimer, Parkinson, ALS, and the management of health threats such as AIDS.

The emergence of models and the existence of large data sets that require quantitative analysis in biology gives a great opportunity for mathematics.

The most significant biological achievement of the 20th century is the identification of DNA.

The modeling of epidemics and the study of signal propagation in nerves are the growing works of differential equations and studies of dynamical systems in this century. In the neurological process, Parkinson's disease is at the center of the modeling work. There are around 1012 neurons in the human brain.

To understand properly their relationship with all of the other neurons they proved that the differential equations can be used for the models.

There are areas in biology that have been advanced by mathematics, such as computational neuroscience, population dynamics, ecology, the spread of disease, and phylogenomics. Considering this new trend, important mathematics courses should be included in the biology curriculum to understand the applications of mathematics, and also a considerable number of biology courses should be included in the mathematics curriculum to understand biological problems.

Math allows biologists to describe how molecules move in and out of cells, how bacteria to shuttle through blood vessels, how drugs get broken down in the body, and many other physiological processes.

Math helps scientists design their experiments, including clinical trials, so they result in meaningful data, a.k.a statistical significance.

Scientists use math to piece together all the different parts of a cell, an organ, or an entire organism to better understand how the components interact and how perturbations in these complex systems may contribute to disease.

Sometimes it's impossible or too difficult to answer a research question through traditional lab experiments. Hence, biologists rely on math to develop models that represent the system they're studying, whether it's a metastasizing cancer cell or an emerging infectious disease. These approaches allow scientists to indicate the likelihood of specific outcomes as well as refine the research questions.

Also, there is a separate branch of biology involving math i.e., Mathematical biology or Biomathematics is a branch of biology that develops, and behaviour of and within biological systems.

During Covid-19, Mathematics was extensively used in the form of timeline and data analyses for analysing the number of cases and vaccination distribution across the globe.

By - PRERNA JHA (XII-B)

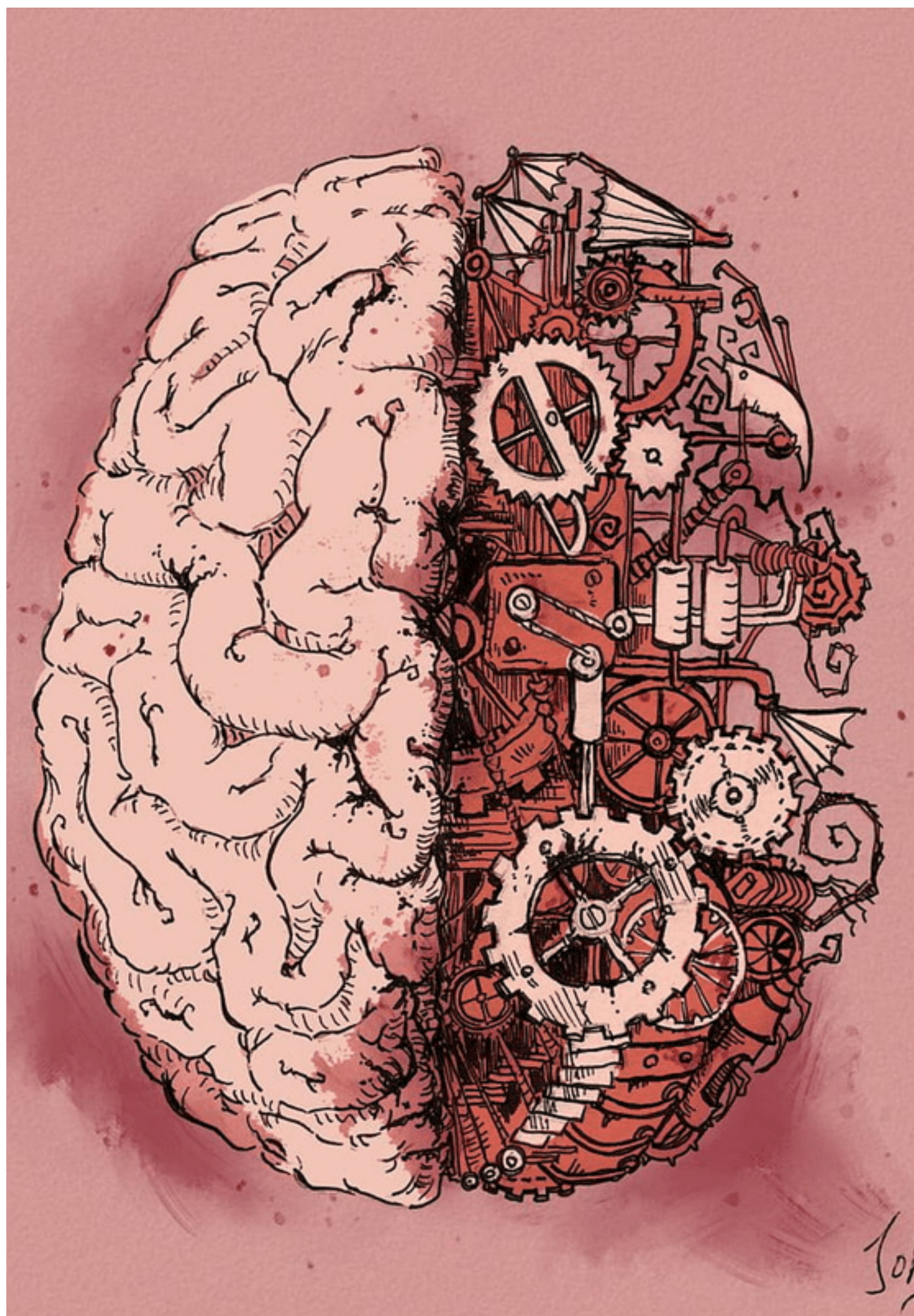
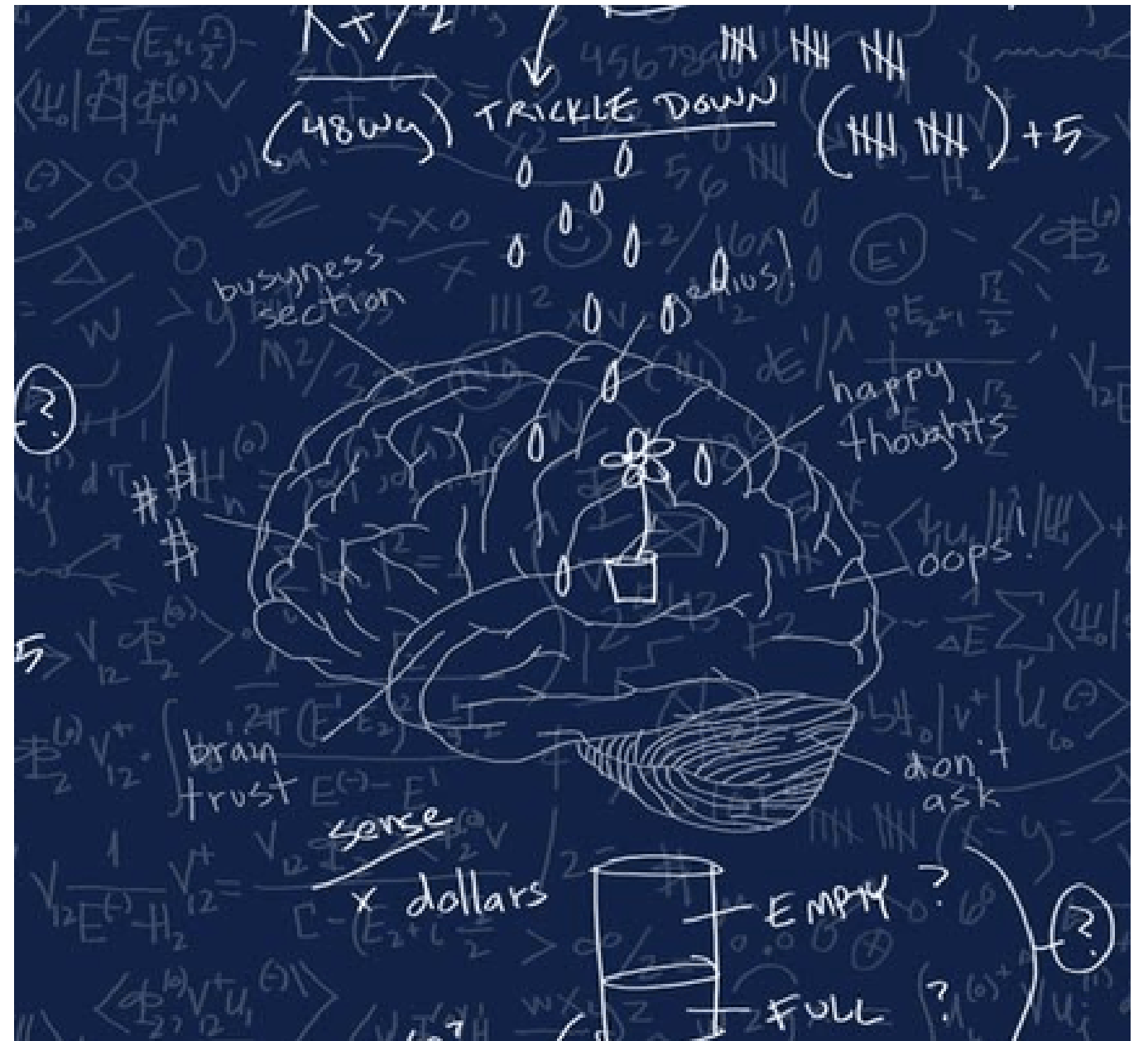
The bottom right corner of the page features a collage of three distinct images. The top image is a classical marble bust of a person's head, surrounded by lush green foliage. Below it, on the left, is a close-up of a plant with large, dark green leaves. To the right of the bust is a landscape photograph showing a winding river or path through a valley, with mountains in the background under a clear sky.

EFFECTIVE DIGITAL TOOLS IN MATHEMATICS LEARNING

"MATHEMATICS, A MAGIC MANIFOLD THAT SETS THE WORLD TO HOLD A NEW CALCULATION THAT TRANSCENDS ALL DIMENSIONS "

We usher into the digital world of today where enormous learning resources are available for a plethora of subjects. Mathematics being one, the such subject that has its own uniqueness where digital learning always helps students in improving their learning outcomes. But, the best results are ensured only when these digital learning tools are integrated into a rich physical teaching environment.

As access to technology has increased, online teaching tools allow for a more personal and customized learning experience for children which is a boon for students who suffer from Math Phobia. An integrated approach to mathematical learning wherein the students try to get their doubts removed using digital tools at their own pace, helps them shed their inhibitions.



BY - MS. ANJALI SHARMA

The need of the hour is the judicious usage of these digital tools as everything has its pros and cons. We all have witnessed distractions during online teaching learning in COVID times. Loss of concentration, wastage of time and reduced effectiveness of learning outcomes are a few distractions

To help combat these issues, it is important to engage students in collaborative learning. This helps students learn high-order thinking, critical analysis, and communication skills.

Students always like to learn something which is fun and new. As teacher mentors, it is our utmost responsibility to make the learning of mathematics, fun so that student engagement is maximum.

During COVID times, as students and teachers were struggling to understand the nuances of the digital learning tools, I too stressed over searching for solutions for my struggling students. In May 2020, I began making a podcast, "Mathematics Simplified" with the vision that this would help students understand the basic concepts and they may listen to it anytime according to their own convenience. This journey is going on and till date 29 episodes have been prepared on various topics, keeping in mind the fact that only those topics chosen can be explained well orally and require no visual stimulation.

Online/ hybrid teaching is projected to continue to higher levels around the world. However, nothing compares to the traditional classroom experience. But, by using the right Ed Tech tools and software, the effectiveness of the class can be boosted positively.

So, looking forward to new approaches to learning and teaching Mathematics, that will surely make learning last forever for one and all.

This is useful for students who require individual support in mathematical learning. As no two learners are alike, this helps the ones who have trouble understanding and using mathematical concepts.

This set of digital tools helps in better retention of concepts and provides excellent platforms for both the teachers and the taught.

EXPERIENTIAL LEARNING



“TELL ME AND I FORGET; TEACH ME AND I MAY REMEMBER; INVOLVE ME AND I LEARN.”

Involve the child in every stage of teaching-learning process and they will gain knowledge through conceptual learning rather than just learning for exams. This is one of the goals of NEP-2020.

‘Learning by doing’ is the basic concept of Experiential Learning theory. Experiential Learning focuses on the idea that the best way to learn things is by actually having experiences. By engaging students in hands-on experiences and reflection, they are able to connect theories and knowledge learned in classroom to real-world situation. This helps them retain the information in a better way. Experiential Learning often involves working as a team, so learning in this setting allows students to practice teamwork too. Hence, the teacher as a facilitator needs to take the children outside the classroom and provide an opportunity to experience what they have learned in their classroom.



As a part of this, the following tasks were given to students of classes VI to X to experience the application of knowledge in real-life situations.

- Class X students were given the task of applying the concept of Trigonometry in the field by measuring the height of their school building, the height of the basketball pole, etc using a Clinometer.
- Class IX students had estimated the area of the surface of the railings which are fixed at the corridors outside their classroom.
- Class VIII students enthusiastically measured the surface area of the almirah of their classroom which is to be painted.
- Class VII students were seen feeling delighted after verifying the value by drawing circles of different radii on the floor of the corridor.
- Class VI students were elated to find out the number of tiles required to cover the remaining part of the wall inside and outside their classroom.

The students completed the task in a planned and systematic way. They made different groups, delegated the work among their team members, and shared the results, reactions, and observations with their peers. They discussed the feelings generated from the experience.

The teaching-learning process should not be restricted to the four walls of a classroom. Taking children outside the classroom will benefit them to explore and apply the content learned in the classroom in a specified field, away from the classroom. Through these experiences, students develop communication skills, and self-confidence and strengthen decision-making skills by responding to and solving real world problems.



The Golden Ratio

“Anything that won't sell, I don't want to invent. Its sale is proof of utility, and utility is success.”

-Thomas Edison

"The laws of nature are but the mathematical thoughts of God" - Euclid

1.618 or its inverse 0.618

This is not a mere number but wizardry in the world of Mathematics. It is often called “The Golden Ratio” and when I heard the 3 words the first question that jumped into my brain was- “What is so golden about a ratio?”

Sometimes, you can get the statistics, dull and monotonous digits to stop the functioning of your brain, We are all very critical and have a picky child residing within us. Can you believe the pickiness of the Greeks who found out that when the ratio of length to width of the rectangle is 1.618, it is most pleasing to the eye? As the so-called ‘GenZ’ calls it:- Aesthetic.

Do you Love the perfumes with the scent of the best flowers out there? When examined it is found that the petals are exactly 0.618 degrees turned to let the flower enjoy all the sunlight and its goodness.

Hurricanes are chaotic and devastating but 1.618 finds its place in the wreckage perfectly fine. When an arc connects the points of a rectangle blessed with the golden ratio and this process is continued by dividing it into a square and another rectangle with the golden mean till it is possible, A spiral gets formed which is precisely the shape of a hurricane!

It is morally wrong to fight and one must never practice aggression but surprisingly the divine proportion also enjoys dramatic fights as much as we humans do. When a hawk approaches its prey, its sharpest view is at the angle same as the golden spiral's pitch.

If you have the question- Is the golden ratio found in humans as well, The answer is - 'oh yes!'. it is?

The measurement of a DNA molecule is roughly 34 by 21 angstroms, the ratio of which equals- you’ve memorized it by now- 1.618

Math in books can be tedious and mind-numbing compared to the math that nature portrays and teaches us and thus I have now proved how Math is nothing but a sorceror that can amaze you.

Feel free to be amused in the best way.

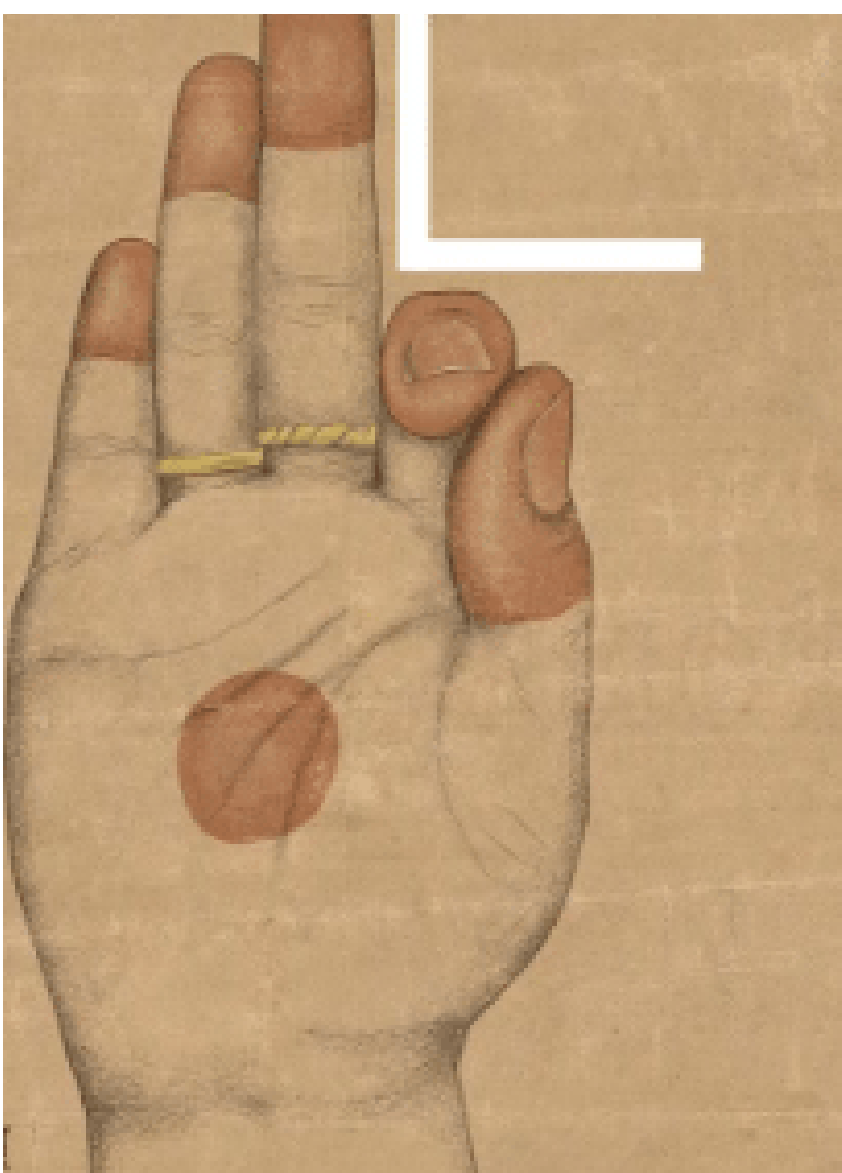
Ananya
Kamboj
IX A

INTEGRATION OF MATHS IN DANCE

OTHER PATTERNS

When we form Ardhapataka, our hands form obtuse angles.

When we form the Kartarimukha Mudra, our index and middle fingers form an acute angle.



The first thing that comes to mind when we hear about mathematics is calculations and number problems! However, we rarely pay attention to the very basic fact that Mathematics is everywhere. Due to the NEP 2020's emphasis on integrating different performing arts with various theoretical and practical subjects, we can now witness that mathematics is found in a variety of dance forms. India is rich in heritage and historical valor. Different mathematical concepts are involved in each dance form to create a beautiful result. Observing each mudra brings one closer to understanding the basics of triangles. As we try to implement it in the real world, such as dance, we will discover how easy it is to interpret the properties of various types of triangles. As a result of the placement and position of elbows in each dance mudra, we are able to better understand the triangle.



We tend to form a right-angled triangle when we portray Ardhapataka and Simha-mukha with our hands, while keeping our elbows folded and upwards



The upper hand placed on the face depicts an isosceles triangle, while the lower hand placed in front of the chest shows an equilateral triangle.



BBPS NOIDA

INDIGENOUS GAMES -

The students of Bal Bharati Public school also made some games for you to try

INTEGER-BASED EDUCATIONAL GAMES

Educational games are explicitly designed for educational purposes or have incidental or secondary educational value. All types of games may be used in an academic environment. However, educational games are designed to help people learn about certain subjects, expand concepts, reinforce development, understand a historical event or culture, or assist them in learning a skill as they play. Game types include board, card, and video games.

Bingo - made by class 6th students



BINGO

- 1) There will be a number of cards from 1 to 12 and -1 to -12
- 2) Each card will have a question on it
- 3) The organizer will choose a card and write that question on a board
- 4) The players will be making a "Bingo Table"
- 5) Then students / players will be solving and cutting that question's answer.
- 6) We will stop the game at any time and will see and match the bingo sheets of student with ours

One group of students made addition and subtraction of integers easy by using a simple integer-based race. The rules of the game are as follows:

1. There will be a negative dice and a positive dice.
 2. You will have to roll both the dice at once and then subtract the number obtained.
 3. If you get the negative number as the difference then move that many steps to the negative side, and if you get a positive number as the difference, then move to the positive side.
 4. First person to reach the finish line wins the game.
- Team members are Yashika, Vldhi, Vishwas, Vedika, Soham, Smriddhi, and Tanish.



GLIMPSES OF THE
INTEGER ACTIVITY



START	8	16	24	32	40	48	56
1	9	+3	25	33	41	49	57
2	10	18	26	34	42	50	58
3	+2	19	-6	35	43	51	-10
4	12	20	28	36	44	52	60
+2	13	21	29	-5	45	+2	61
6	14	22	30	38	+3	54	62
7	15	-4	31	39	47	55	FINISH

INTREEGO

RULES OF THE GAME:

- ✓ GO UP AND DOWN ACCORDING TO THE NUMBER
- ✓ IF NEGATIVE GO DOWN!!
- ✓ FIRST ONE TO REACH THE END WINS!!

PLAY
NOW

Created by class VI B



ENJOYING MATHS THROUGH ACTIVITIES



WAR OF EXPONENTS

TREASURE HUNT



MATHS RELAY





MATHEMATICAL MODELLING



MATHEMATICAL LUDO



CREDITS –

**VISION AND GUIDANCE:
MS. ASHA PRABHAKAR, PRINCIPAL**

**MENTORS:
MS. ANUPAMA MOTWANI, VICE PRINCIPAL,
MS. AMITA GANJOO, HM (SR)**

STUDENTS EDITOR AND DESIGNER:

**ARUN KUMAR - VIII E
AAYUSHI BALSARA - VIII A
KHYATI - VIII A**

TEACHERS INCHARGE

**MS. ANJALI SHARMA (HOD)
MR. SANJAY DUA
MR. ANOOP DIXIT
MS. SUBHA RENAKUMAR
MS. VAISHALI MITTAL
MS. NAMRTA KAUSHIK
MR. ANSHUL DUBEY**