



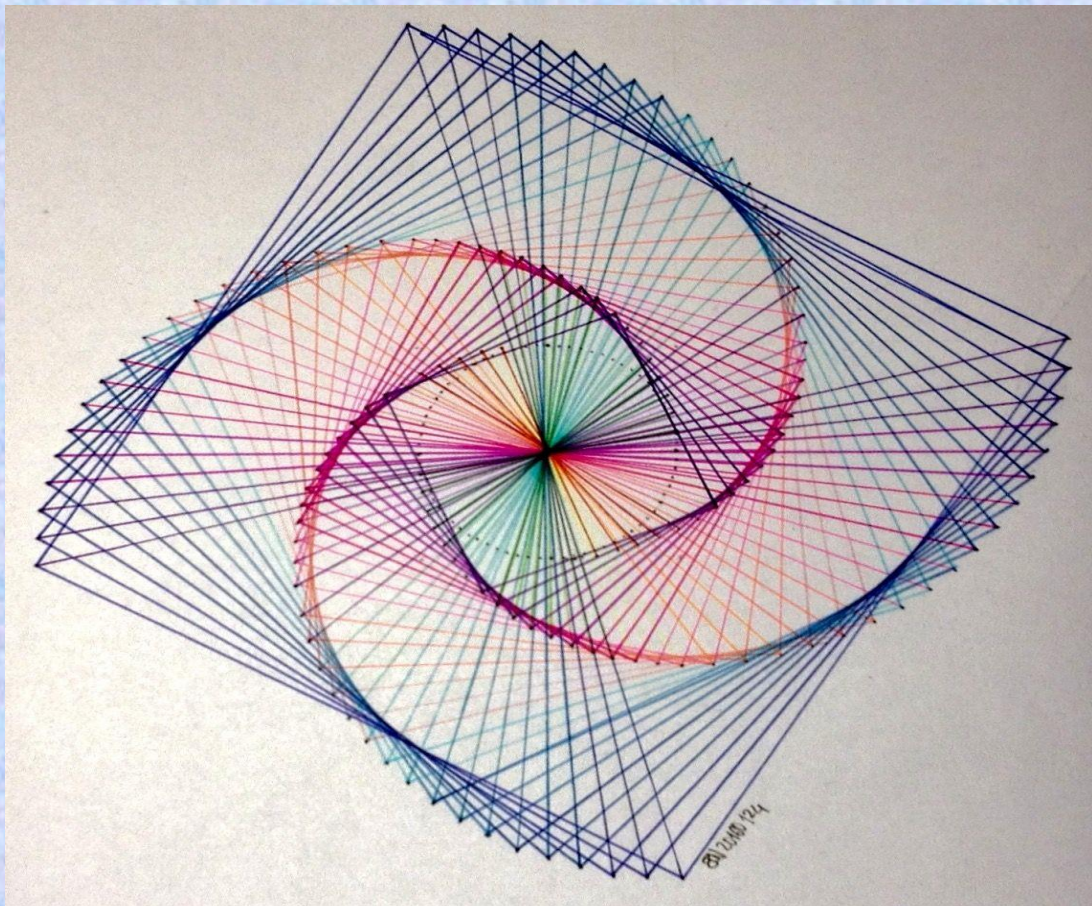
MAHAVIR SENIOR MODEL SCHOOL

presents

Math-O-Pedia

ANNUAL MATHEMATICS E-NEWSLETTER

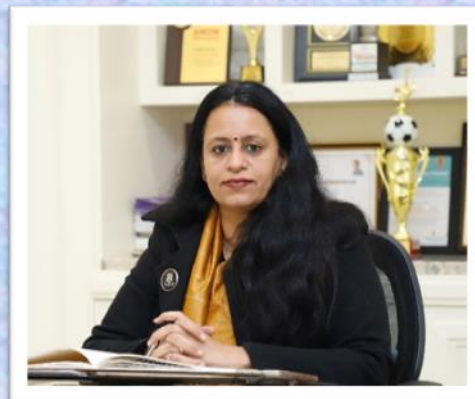
SESSION 2023-24



From The Principal's Desk

"Pure mathematics is, in its way, the poetry of logical ideas." - Albert Einstein

It is with great pleasure that I present the annual newsletter of our Mathematics Department, "Math - o - Pedia". This publication is a celebration of the incredible achievements and contributions of our students and faculty, who have embraced the beauty and complexity of Mathematics with enthusiasm and dedication.



Over the past year, our department has been a hive of activity, with students participating in a wide range of competitions, events, and activities that have showcased their talent and passion for Mathematics. From the excitement of Mathematics Olympiads to the ingenuity of problem-solving competitions to the precision of mathematical modelling, our students have showcased their talents and skills, making us proud at every turn.

I would like to extend my heartfelt appreciation to the faculty and Mrs. Anjali Mathur, HoD - Mathematics, for their unwavering commitment and tireless efforts in shaping young minds and instilling in them a lifelong love for learning. Their passion for teaching and commitment to excellence have been instrumental in shaping the future mathematicians and problem solvers of tomorrow.

I would also like to congratulate our students for their outstanding achievements, both in and out of the classroom. Your hard work, perseverance, and passion have not gone unnoticed, and I am incredibly proud of all that you have accomplished.

As we reflect on the past year and look forward to the future, let us continue to explore, innovate, and inspire, knowing that the world of Mathematics is vast and full of endless possibilities.

*Ruchika Sukhija
Principal*

MESSAGE FROM THE HOD

A good education is a foundation for a better future."

- Elizabeth Warren

Mathematics is an intellectual endeavor through which students can develop their imagination, initiative, creativity & flexibility of mind, as well as their ability to appreciate the beauty of nature.

Believing in this thought, MSMS tries to fulfil its objective of providing quality education to all its students.



Keeping this aim in mind, We at MSMS conduct various activities and competitions at all levels to develop mathematical thinking skills in our students. This helps our young learners become familiar with new approaches & methods, enabling them to become good at problem solving & critical thinking.

This year also Mathematics Department conducted many activities, organized various competitions, celebrated special days & Mathematics Week which will definitely lead to inclination towards the subject and enhancement of learning.

Lastly, I would like to applaud my entire dedicated team for their sincere efforts & valuable contribution in making Mathematics learning effective, interesting for our young Mahavirians.

Thanks & Regards

Ms. Anjali Mathur

HOD Mathematics

Team MSMS

What's inside?

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PI-APPROXIMATION DAY

Day & Date: Saturday, 22.07.2023

“Exploring pi is as interesting as exploring the universe around us.”

Pi Approximation Day is observed on July 22 (22/7 in the day/month date format), since the fraction 22/7 is a common approximation of π , which is accurate to two decimal places and dates from Archimedes. π is the ratio of a circle's circumference to its diameter, approximately equal to 3.14159. It's an irrational number.

Mathematics Department, MSMS celebrated the day with great enthusiasm, for which a plethora of activities were organised for the students across the grades I to XII.

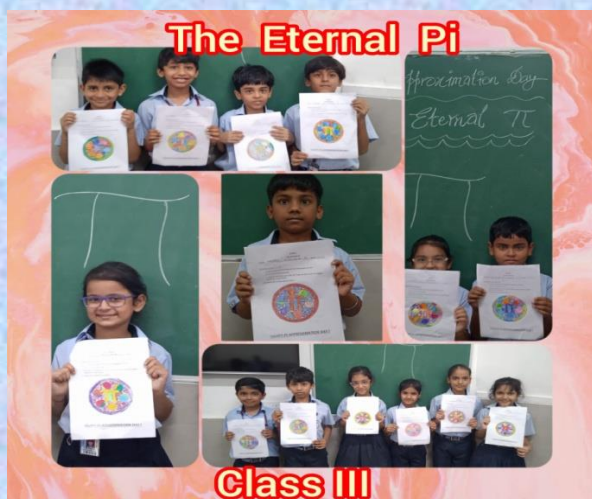
Class I: MY PI CRAFT - To make students aware of the symbol of pi by pasting bindis on it. It improves hand-eye coordination and concentration skills of little ones.



Class II: SPOT THE PI - The tiny-tots identified the symbol of pi (π) by colouring in the activity sheet as per the given color codes.



Class III: THE ETERNAL PI - The fun colouring sheet was provided to the little ones to which they coloured their π rangolis. They appreciated & imagined the eternal feature of Pi, i.e., its never ending nature.



Class IV: PI-VASE - The young ones drew the flower vase & designed it with the symbol of pi & other waste/decorative items.



Class V: PI BRACELET - Students made beautiful π -bracelets using beads, clay, colours, waste materials, decorative items etc.



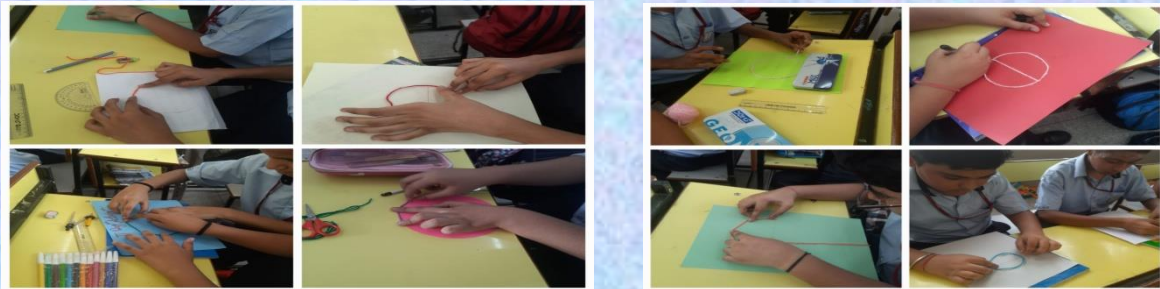
Class VI: DESIGNING THE PI - Students were involved in depicting or forming the symbol of pi (π) by arranging themselves in the sitting position.



Class VII: APPRAISAL OF PI - The learners pasted beads/buttons on the circumference & diameter of circle & compared the ratio to get an hands on experience to find the value of pi (π).



Class VIII: FINDING THE PI - Students got a hands-on-experience & found the actual value of pi (π) by measuring the circumference & diameter of the circle using thread & thus comparing their ratio.

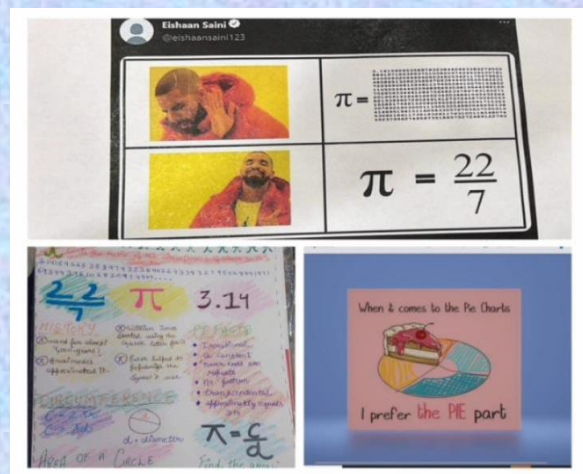


Class IX: MASTERING THE PI - The students were asked to memorise the decimal values of Pi upto as many places as they can. They could memorise the decimal values of PI more than 100 decimal places.



Class X: PROJECT ON PI - Students made project on history , importance of pi and interesting facts on pi & learnt about it.

Classes XI & XII: MATHEMATICAL MEME - Students showcased their creativity & made the posters/ mathematical meme based on pi (π).



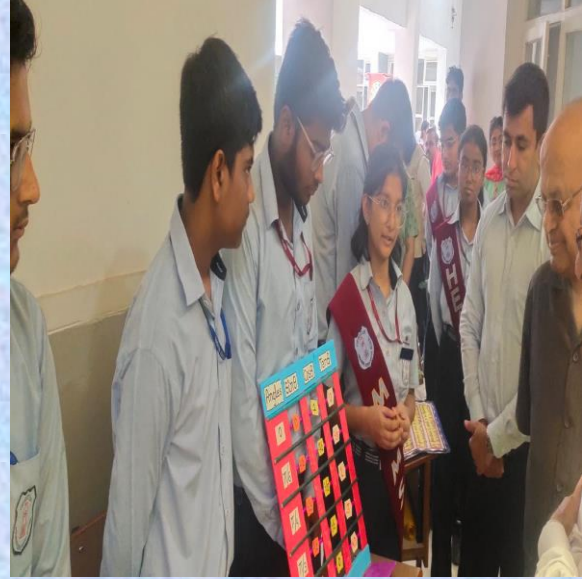
Special assembly: Class VII B conducted the special assembly to celebrate the day on 19th July wherein they presented shlokas, songs, speeches, posters, banners, etc., on pi (π).



Along with the several art- integrated & experiential learning activities, students were also made aware about the importance of the day & its significance in a fun way by their respective mentors.

To conclude the celebration, **Mathematics Exhibition** was set up in which different **working models, mathematical games, mathematical comic strips, project work and other creative works** of students of **classes I to XII** were displayed. **Shri S.K. Munjal , Chemistry expert**, esteemed management members & honorable principal ma'am graced the occasion as the chief guests and took keen interest in the presentation given by the students & appreciated their efforts.





MATHS WEEK CELEBRATIONS

“Mathematics is the most beautiful and most powerful creation of the human spirit.” - Stefan Banach

To mark the birth anniversary of one of the legendary Indian Mathematician, Srinivasa Ramanujan and to celebrate National Mathematics Day on 22nd December, Mathematics Department of MSMS conducted a plethora of activities across the classes I to IX and XI. Sharing the glimpses of some of them:

Class I: Paper Pizza

The li'l ones made the circular base and decorated the pizza toppings from different geometrical shapes and pasting on the paper plates.



Class II: *Mathematical Jingles*

Students recited the mathematical poems/rhymes/jingles on different mathematical concepts, application of Mathematics, appreciating the beauty of Mathematics and many more, with creative props.



Class III: *Math-Spy*

Students got a chance to be a 'spy'. They made & brought their beautiful models of real objects/ 3-D objects, shared the history, interesting facts, details about its invention, etc. Also, they spoke about the shapes of their models & how maths is integrated in it. The audience was enthralled with the interesting information, exciting models & overall presentations.



Class IV: *Visual Representation of Mathematical Terms*

The students presented themselves beautifully as different mathematical terms. The aims of this competition were to associate mathematical terms in daily life situations and develop connectivity of the students with the subject.



Class V: *Creative Use of Tangrams*

Students made posters using seven pieces of Chinese puzzle, 'Tangrams', on different themes. It served as a good learning tool for the students and enhanced their aesthetic sense & creativity.



Classes VI & VII: *Representing a Mathematician*

Students showcased their understanding of Indian and International Mathematicians through engaging enactments. The performances showcased the global influence of Mathematics and the interdisciplinary nature of the subject.



Classes VIII & IX: *Mathematical Working Model*

Students made working models on Mathematical concepts. They demonstrated the principles & logic behind them to make the learning more engaging and impactful.



Class XI: Mathematics Hands-On Activities

The competition was a dynamic showcase of mathematical concepts brought to life. Students engaged in practical applications, solving real-world problems using mathematical principles. The event promoted critical thinking, problem-solving, and collaboration, highlighting the relevance of mathematics beyond theory. Winners demonstrated innovative approaches to mathematical challenges, showcasing the class's commitment to experiential learning in the realm of mathematics.



Special Assembly: Students of class VI-C conducted the morning assembly in which they enacted on the discovery of 'Hardy-Ramanujan Number' and the journey of Ramanujan as a mathematician. It was followed by a Nukkad Natak emphasizing on the importance of Mathematics in daily lives which left the audience deeply mesmerized and amazed.



With great enthusiasm, Mathematics Week'23 concluded with showcasing the glimpses of all the activities and competitions in the Maths Exhibition. It served as a wonderful platform for everyone to learn new things creatively.

Fun With Mathematics

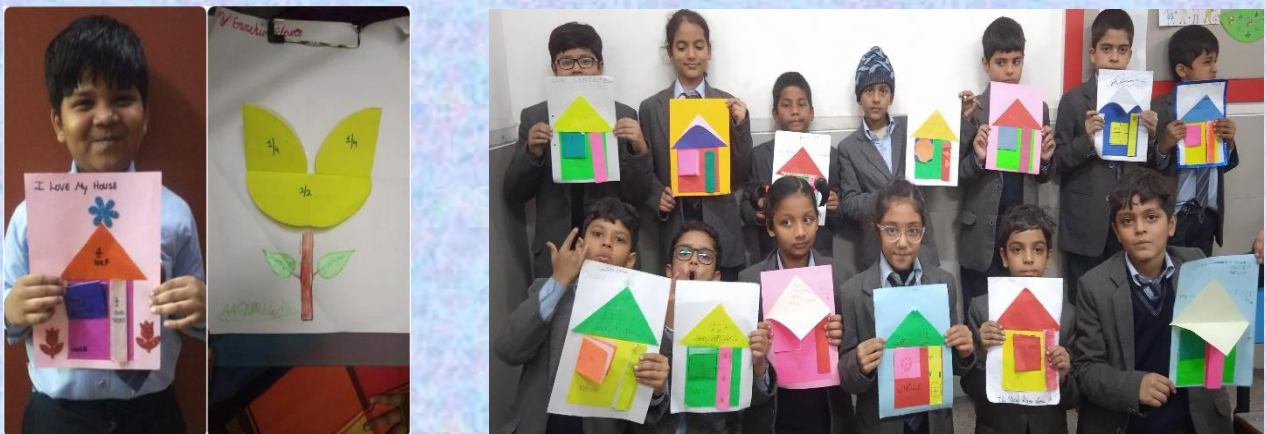
Classes: II & III

Art- Integrated Activity: My Fraction House

Keeping the above thought in mind, an art-integrated learning activity was conducted for the students of classes II & III where they understood the concept of fractions by creating FRACTION HOUSE using colourful origami sheets.

A fraction is a part of whole .The little ones discussed how they use fractions in daily life, such as while sharing, in cooking when different ingredients are need to be measured, while shopping, etc., and thus appreciated the concept.

Children showcased their creativity and further, to reinforce and develop psycho-motor skills, they also made FRACTION FLOWER through paper folding & pasting.



Class: II

Experiential Learning & Art-Integrated Activities: Learning Measurement

A series of experiential learning activities & art-integration was conducted for the students of class II to observe and apply the concept of measurement.

Measurements continue to play an important role throughout everybody's life, such as in cooking, finding the heights, depths, distance, in finding temperature, in markets, etc.

Students constructed their knowledge based on doing & learning through following activities:

◆□ Measuring Length: Students measured the length of their desks, classrooms, blackboard, books, using non-standard units such as **handspan, foot, cubits, pace, fingers, etc.**

◆□ Measuring Weight: Students made **weighing balance** out of the waste materials (cloth hanger, paper cups, wool, etc.), weighed their stationary items & had fun while balancing it.

◆□ Measuring Capacity: Students observed & estimated the units of litre & millilitre using their water bottles, water tanks, buckets, mug, spoons, etc.

◆□ To appreciate the Mathematics in real life, students **observed different labels/wrappers** of different items at home such as oil, shampoo, chips, soap, wheat, etc., indicating the different units & pasted some on an A4/A3 sheet.

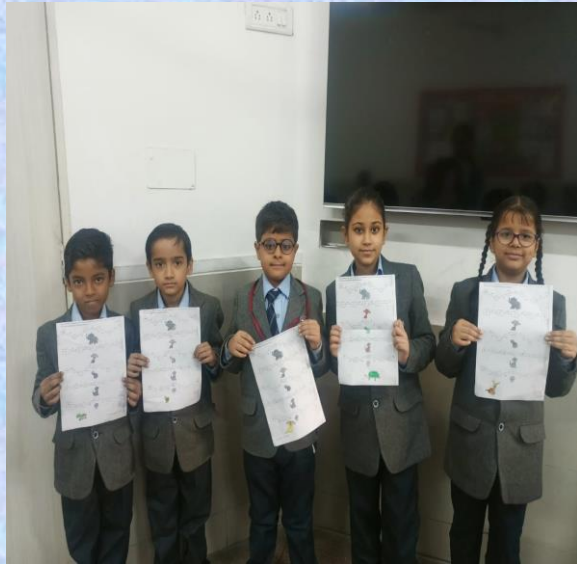
Students enjoyed each of the activities since it gave them the chance to **hands-on-experience** of learning.



Class: III

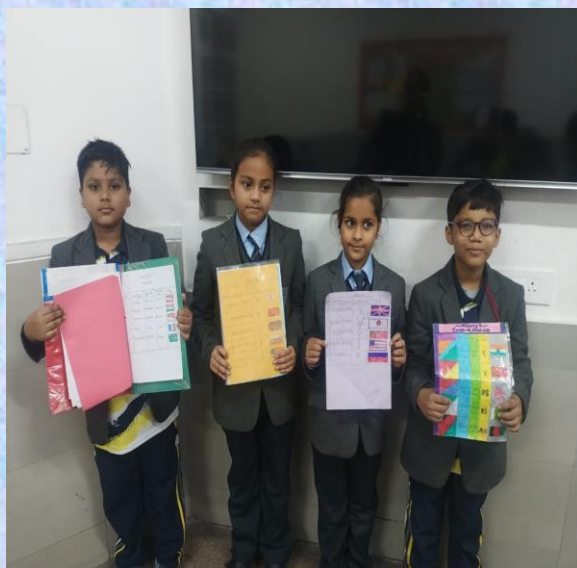
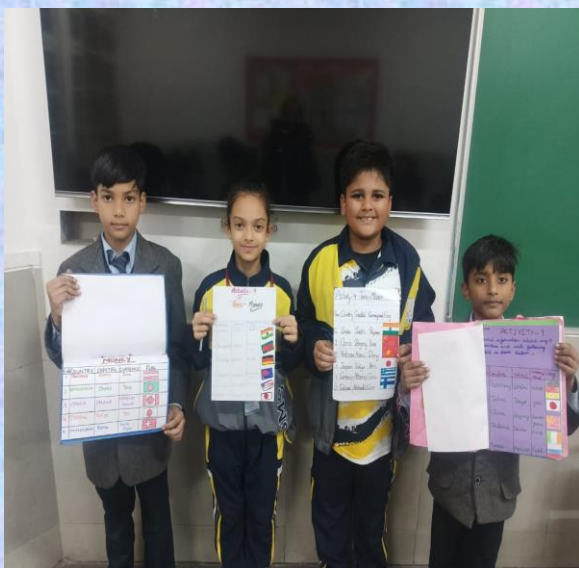
Experiential Learning Activity: Four operations

Four basic operations are the base of Mathematics. A thorough understanding of these operations give a good understanding of the subject. Students of class III solved a puzzle sheet based on these four operations.



Art Integration Activity: Money

Students of class III were given a project on currency. They explored about the country, its capital, its currency and made picture of the flag of that country. The purpose of doing this activity was to make students familiar with the currency of different countries. The activity also connected GK and Arts.



Class: III

Art Integrated Activity: Fractions

Students were explained the concept of fractions through colouring and shading. They also represented fractions through paper folding.



Class: IV

Art Integration Activity: Factor Rainbow

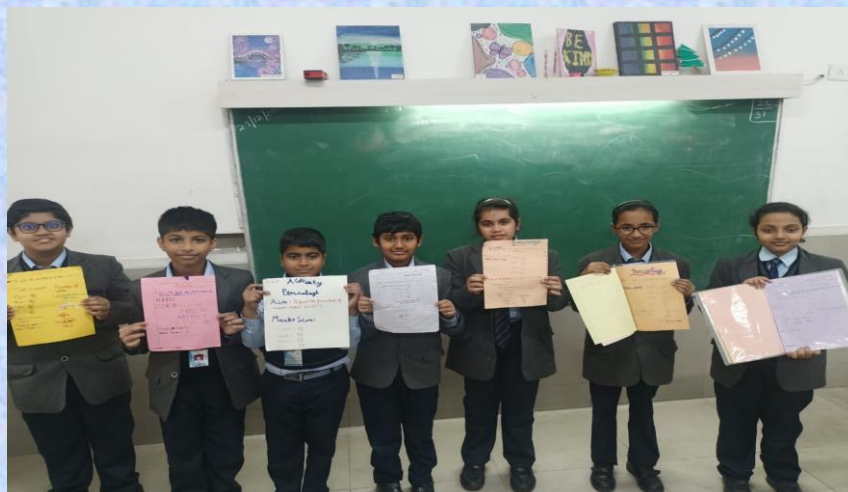
Students of class IV learnt to find out the factors of a particular number by making a colourful rainbow. They represented the pairs of factors by drawing the arches using colours of rainbow.



Class: V

Experiential Learning Activity: Percentage

Percentage is an important topic which is required at many places in our daily life. It is a number or ratio expressed as a fraction of 100. Students of class 5 calculated the percentage of marks obtained by them in half yearly examination.



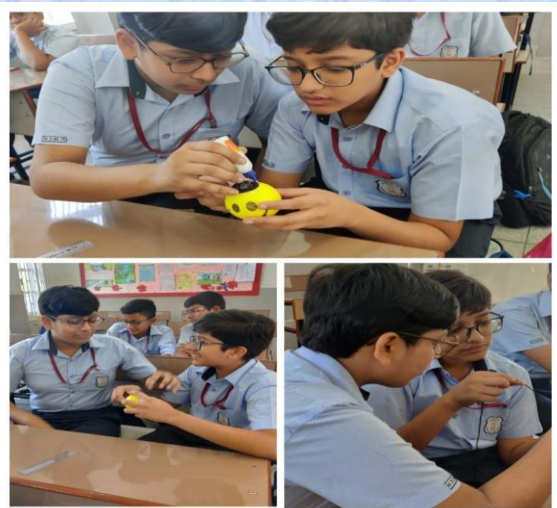
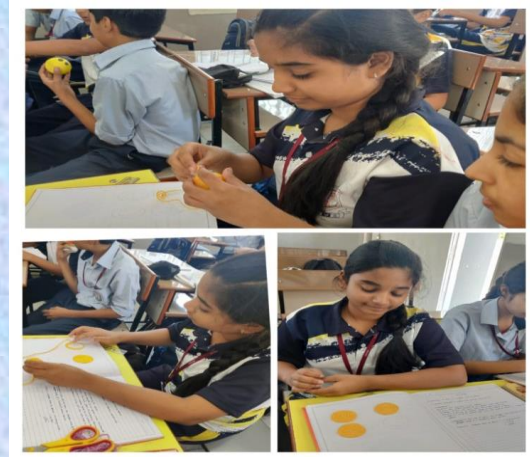
REPORT ON MATHEMATICS ACTIVITY - SURFACE AREA OF SPHERE

The primary objective of this experimental learning activity was to help Class 9 students themselves derive the formula for surface area of sphere. Students covered the entire surface area of ball with the help of wool/thread and measured the radius of ball by measuring the circumference of the circular ring around the ball. Then, they unwound the wool/thread and tried to cover the circles of radius equal to the radius of sphere.

They observed that four circles can be completely covered from the wool/thread that was used to cover the ball and hence they concluded that surface area of sphere is equal to the area of four circles which can be stated in mathematical terms as :

$$\text{Surface area of sphere} = 4\pi r^2$$

This hands-on activity proved to be very engaging and students actually felt very happy after deducing the formula for surface area of sphere.



REPORT ON ART INTEGRATION ACTIVITY -THE SQUARE ROOT SPIRAL

The square root spiral is a very popular art integration activity for class IX. This activity involves creating a spiral using square root numbers. It is an excellent art integration activity because it combines mathematics and art in a meaningful way. It helps students understand the concept of square root numbers and how they relate to geometric shapes. It also encourages students to use their creativity and problem-solving skills to create a unique work of art. Overall, the square root spiral art integration activity proved to be an engaging and valuable learning experience for students of class IX.



Tessellation

(Experiential and Art Integrated Activity)

Tessellation is any recurring pattern of symmetrical and interlocking shapes. They are a crucial part of arithmetic because they may be manipulated to be used in artwork and structure. One artist specifically, **MC Escher**, a Dutch artist, integrated many complicated tessellations into his artwork.

Students of **class VI** were given opportunity to explore different types of tessellations.

First of all the topic was explained with the help of tiling on the floor of their classroom .

Then, they were taken to football ground and assembly ground where they were allowed to observe various repeating patterns around the ground.

They came up with wonderful **observations** like petals of flowers or repetition in the form of cube or hexagons.

After that students were given the opportunity to plan their tessellation puzzle designs on paper, considering the repetition of shapes and the overall visual impact.

Each student came with beautiful tessellation design which they presented in the form of **puzzle**.

Students appreciated the beauty and presence of **Mathematics in our environment**, thereby achieving the learning objective of the activity.

Wonders of warli Art and Mathematics

Students were divided in groups . Every group made beautiful posters and invitation card using warli art. They also did detailed research work on various aspects related to warli art..

- Students identified that Warli art uses a set of basic geometric shapes: a circle, a triangle, and a square. These shapes are symbolic of different elements of nature. The circle and the triangle come from their observation of nature. The circle represents the sun and the moon, while the triangle depicts mountains and conical trees. In contrast, the square renders to be a human invention, indicating a sacred enclosure or a piece of land.
- Students analysed and observed that Warli art can be used to depict pictures of human beings and animals along with scenes from daily life. The joy, happiness, celebration, day to day activities can be easily depicted with this art form.
- Students could relate this art form to not only with Mathematics but also with Tarpa dance.
- They found that basically two colours were used – Earth brown and white.

After collecting and doing research work, students made beautiful drawings using warli art. This activity proved to be very beneficial to students in terms of not only increasing their knowledge but also in developing deep aesthetic sense.



Class VII

Topic :Creative lamps using Visualising solid shapes

An art integration and experiential learning activity was conducted in class 7th .

By *applying the concept of visualising solid shapes* students made beautiful Mathematical 3D lamps ,using A4 sheets cardboard ,LED lights etc.Students actively and enthusiastically participated in this activity.They shows their creativity and created unique lamps by the combination of art and Mathematical concepts.



OLYMPIADS

1. NCERT MATHEMATICS OLYMPIAD:

Conducted by - Maths Olympiad Foundation, Delhi

Mathematics Department of MSMS successfully conducted the NCERT Maths Olympiad across the classes I to XII. A total of 104 students participated enthusiastically in this Olympiad.

2. INTERNATIONAL MATHEMATICS OLYMPIAD 2023

Mathematics department of MSMS successfully conducted IMO, organized by Science Olympiad foundation on 30th November, 2023, Thursday. 170 students from classes I to XII participated in this olympiad.

These exams gave an exposure to our students to attempt objective type and application based questions that are frequently asked in several competitive exams.

EDUCATION THROUGH MONUMENT



In a captivating educational initiative, Mahavir Senior Model School students actively participated in the "Education through Monument" project, delving into the mathematical aspects of various architectural arch types. Their investigation revealed that Islamic monuments, such as the Firoz Shah Kotla Fort, predominantly

featured Gothic arches.

Curious to discern the rationale behind this architectural choice, the students explored the merits and drawbacks of lintels, semi-circular arches, and Gothic arches.

Ever since Neolithic times, people have been placing a long block called a Lintel across two supports. But lintels cannot hold much weight.

Interestingly they discovered that, if they want a rectangular beam to support heavy weight then the posts have to be either closer or very wide. That's why Romans made semi-circular arches which channelize forces around the arch rather than through the middle and hence are more stable. This allowed much taller, wider and loftier construction. But, semi-circular arches exert pressure downward. So, in order to support large buildings, they need very thick walls at the base. This means small deep-set windows which don't let in much light. Because of this Roman style churches are much darker and shorter.

Around 7th century CE, Islamic states designed Gothic arches or pointed arch. The type of arch noticed in Firoz Shah Kotla fort was a pointed or Gothic arch.

These arches allowed them to build bigger, span farther and reach higher than ever before. Pointed arches are structurally efficient and can support greater vertical loads compared to semi-circular arches. This is crucial for the construction of tall and elaborate Islamic monuments, such as mosques and minarets. In most of the religion, light is associated with the divine and pointed arch allowed more light to come in. It became the signature style of the Gothic High Middle ages around 1200 BC.

Their findings not only shed light on the mathematical intricacies within these arch types but also allowed for a deeper understanding of the structural considerations in historical monuments.

In modern architecture different types of arches are used as the material used now-a days, like bricks, cement and steel rods, can support all type of arches.

WORKSHOPS

Webinars and workshops provide opportunities for educators to enhance their teaching skills and stay updated with the latest pedagogical approaches and technological tools required in present situation. In MSMS, we get opportunities to participate in many such webinars and workshops. Some of which are listed below:

- 1) Innovative teaching practices
- 2) The Enigma of Sleep
- 3) Attitude and Skills of a Teachers
- 4) Blue Nudge Training
- 5) Pedagogical usage of Virtual labs in Mathematics
- 6) Learning outcomes and pedagogies
- 7) Differential Learning Techniques
- 8) Empathy, Communication, Leadership:- A teacher's toolkit
- 9) Reducing Screen Addiction
- 10) How gaps in financial literacy and Numeracy impact your schools
- 11) Sensitisation program on financial literacy & digital tools
- 12) Teaching mathematics with the help of History
- 13) Virtual labs in teaching & learning of Mathematics
- 14) Mathematics practice and Assessment: Levels of challenges
- 15) Classroom Dynamics :- A psychological perspective

National Mathematics Day Workshop

Delhi Technological University organised a jubilant fete in honour of the prodigious Srinivasa Ramanujan and the wonders of Mathematics, in partnership with S.D. public school and Countingwell. The attendees of the event were Ms. Pooja Goel and Ms. Sangeeta Chauhan along with four students.

Dr. Atul Nischal initiated the discussion and panellists gave their views on how learning outcomes in Mathematics can be improved like beginning a lesson with Game /Quiz/Examples/Story and relating it with text book and classroom teaching and also explaining the relevance of topic to real world. It was also discussed as how mathematical intuitions can be developed in students and what steps can be taken to remove Maths phobia.

Students exhibited their models and gained insight into how other Mathematical concepts can be exhibited by observing the various models exhibited by other schools. Students participated in quiz organised by Countingwell and it was a great learning for all the participants. The workshop provided a comprehensive platform for educators to explore into enhancing mathematics education.

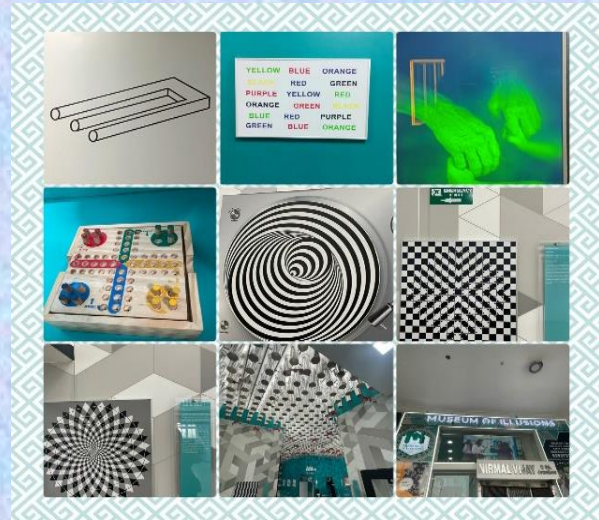


Through insightful discussions, presentations, and interactive sessions, participants gained valuable perspectives on improving learning outcomes and adopting innovative pedagogies in the mathematics classroom.



A Visit to Museum of Illusions

The Faculty of Mathematics on 8th November, 2023 , visited Museum of Illusions with the aim of having a unique perspective on how the concepts are applied and visualized through optical illusions. The visit provided teachers with a unique opportunity to witness the practical application of mathematical concepts in a visually stimulating environment.



INTER-SCHOOL EVENTS

Our school has participated in various inter-school competitions. All the participants gave the outstanding presentations all over the Delhi. Some of them are listed below:

Bal Bharti school

Class 1

Event - Shape Around us

Pihu Aggarwal

Class 3

Competition: Number Art

Event theme: Fun with Fractions

Saatvik Jain

Class 5:

Event:- 2D/3D Bingo

Menaja Sharma

Class 6 - Symphony of maths - Arsh Narula 6B

Class 7 , Creativity with shapes - Tanisqa Kapoor 7C

Class 8 , Creative Calculus - Ansh singhal(8B)

De Indian Public School

- 1) Jhanavi Aggarwal & Onish Goel of IV-A in Arithmetic Adventure**
- 2) Anaya Jain of IV-A in Junior Mathematiker.**

Our Achievers


One of the toughest entrance exams in India is the Joint Entrance Examination (JEE). It is conducted annually for students seeking to take admission in undergraduate engineering programs at IITs as well as other top engineering colleges across the country.

More than 12 lakh students appeared in JEE Mains - 2024.

It gives us immense pleasure to share with all of you that three students of Class XII-C created another benchmark by being on the top in JEE Mains.



- 1) Parth Gupta - 99.52 percentile
- 2) Pranjal Gupta - 98.06 percentile
- 3) Mayank - 96.50 percentile

Congratulations to all of them !



Mahavir Senior Model School

JEE Mains Result 2024

		
Parth Gupta 99.528 Percentile	Pranjal Bansal 98.063 Percentile	Mayank 96.515 Percentile

Congratulations

ARYABHATTA GANIT CHALLENGE

Recognising the importance of nurturing mathematical competencies among students and encouraging the practical application of Mathematics, the Central Board of Secondary Education (CBSE) conducts the Aryabhata Ganit Challenge, for classes VIII - X, annually.

The Aryabhata Ganit Challenge is divided into two levels.

Level 1 : School Level Competition which was held in September.

The competition at this level serves as the first stage of the Aryabhata Ganit Challenge.

Level 2: National Level Competition. CBSE conducts the second level as a computer-based test.

This year, around 5,50,000 students witnessed the enthusiastic participation from around 5050 schools at the school level and 8,590 students participated in national level at second stage. Upon successful completion of the second stage, the top 100 students from each CBSE region are conferred with a Merit certificate.

It's a matter of immense pride that two students from MSMS , Avya Chauhan - IX B and Ansh Singhal- VIII B, have secured positions amongst top 100 students at National Level in Delhi West region.

MSMS ACES

MSMS

FIT INDIA SCHOOL

CONGRATULATIONS!

Ansh Singhal 8 B

Avya Chauhan 9 B

ARYABHATTA GANIT CHALLENGE EXAM

ROUND 1: 5,50,000 STUDENTS

ROUND 2 : NATIONAL LEVEL

8590 STUDENTS 5050 SCHOOLS PARTICIPATED

Secured Position in top 100 at National Level



Ms. Anjali Mathur



Mrs. Pooja Goel



Mr. Manish Kumar



Mrs. Sangeeta Chauhan



Mrs. Renu Gupta



Mr. Akash Kumar



Ms. Sonali Sinha

Pure mathematics is,
in its way, the poetry of
logical ideas.

- Albert Einstein

HAPPY READING !

Compiled by:

Ms. Sonali Sinha

Mrs. Renu Gupta