SUMMER CAMP REPORT OF ACTIVITIES (May-June2021)

Mathematics Department

1. MATHS GAME

Date: 11th May 2021

"***Proper visualization by the exercise of concentration and willpower enables* us to *materialize thoughts, not only as dreams or visions in the mental realm but also as experiences in the material realm***".

Paramahansa Yogananda

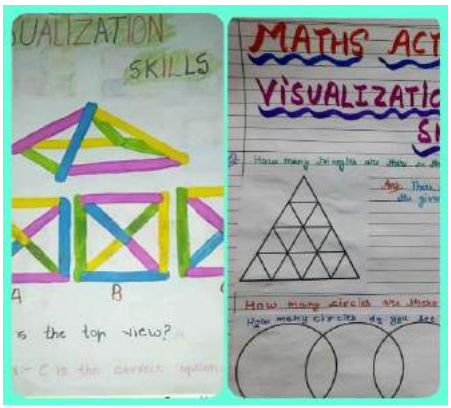
Visualisation is a powerful force for perception and understanding. Being able to "see" something mentally is a common metaphor for understanding it. An image may be of geometrical shape, of a graph or diagram, or it may be some set of symbols or some procedure. It's a powerful tool in problem solving.

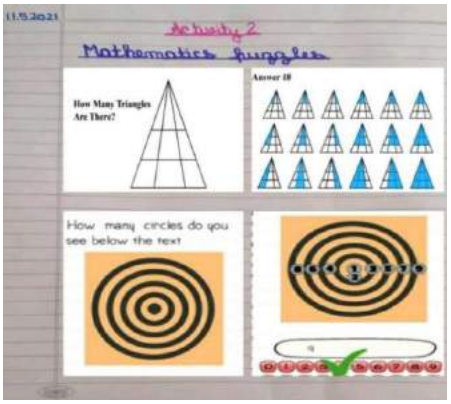
With these points in mind an activity in the form of game, for class VIII, was designed to enhance their visual skills.

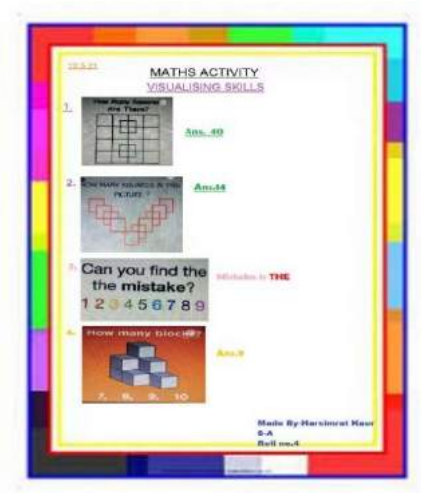
Students were briefed about the importance of visualisation in daily life and in different competitive exams like Maths Olympiads, exams in banking sector etc.

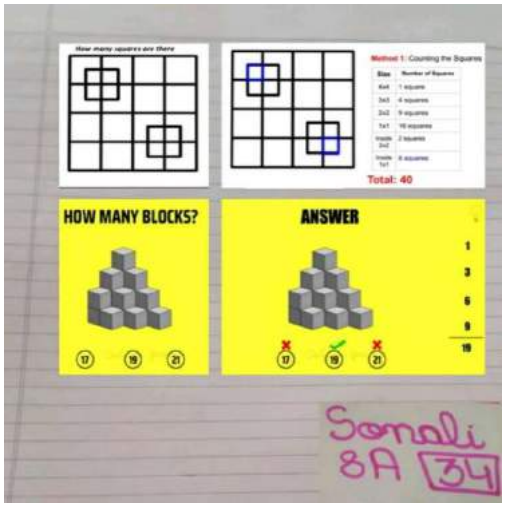
All the students participated enthusiastically to solve different puzzles and questions based on visualization.

Students enjoyed the session and understood the importance of visualisation skills. Students created their own set of questions and shared their responses.









2. Tessellations

Date: May 25, 2021

"I ***am driven by the irresistible pleasure I feel in repeating the same figures over and over*** ".

M.C.Escher

A tessellation or tiling of a flat surface is the covering of a plane using one or more geometric shapes, called tiles, with no overlaps and no gaps.

♦Tessellations can be found in many areas of life - Art, architecture, hobbies, and many other areas hold examples of tessellations found in our everyday surroundings.

♦Tessellation for kids is a great way to combine art and maths.

♦17th June is celebrated as World Tessellation Day.

With these points in mind, students were given a prior home work to make Power Point Presentation or Video on Tessellation.

Many students did their work and all the information written above is actually the research work done by students.

It was very good to see that before the session was taken up, most of the students had information regarding:

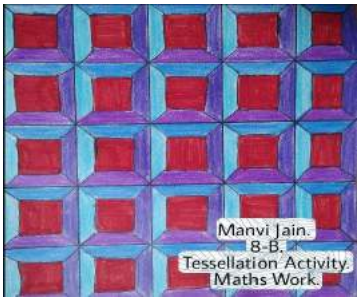
⋆ What is Tessellation?

⋆ How this term came into being?

⋆ Which geometrical shapes can tessellate and which cannot?

Students enthusiastically participated in the activity and made beautiful designs and sent their responses.

Glimpses of work done by the students.



3.Art Integrated Maths Activity Using 2-D shapes

Date : June 2, 2021

"***There is geometry in the humming of the strings, there is music in the spacing of spheres***".

Pythagoras

Geometric shapes design – with circles, triangles, squares, rectangles, and many other shapes often combine to form beautifully intricate patterns. Geometric shape on its own might not look like much, but blended together with other shapes and elements, can lead to a stunning design.

They were first used thousands of years ago in the art of many ancient civilizations, and it is their unique ability to stand the test of time that sets them apart.

The session started with a brief discussion about basic geometrical shapes like Curves, Lines, Circles, and Polygons. Then few designs like Scenery, train, owl, buildings etc., made using some geometrical ,shapes were shown to learners.

Students of class **VI** actively participated, drew beautiful designs using basic shapes and shared their responses.

Glimpses of work done by the students:

4.**FRACTIONS IN DAY - TO - DAY LIFE**

Date : 15th May 2021

"Why do children dread mathematics? Because of the wrong approach. Because it is looked at as a subject."

Shakuntala Devi

Fractions are an indispensable part of our life and without even realizing it, we constantly use fractions in our day-to-day life.

Here are some common, everyday things that we use fractions for:

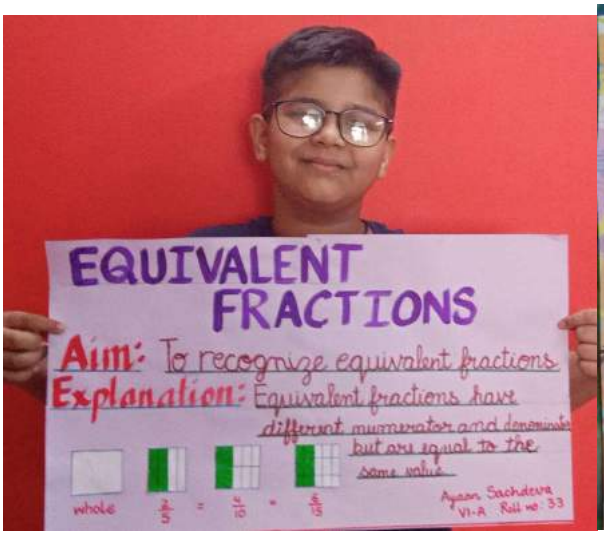
- A ***pizza*** is a great example of fractions. Each piece represents a part of a whole.
- ***Time***: Half an hour is a common way of expressing 30 minutes.
- ***Tests and exams***: Scores of tests and exams are generally expressed as fractions, like 18/20

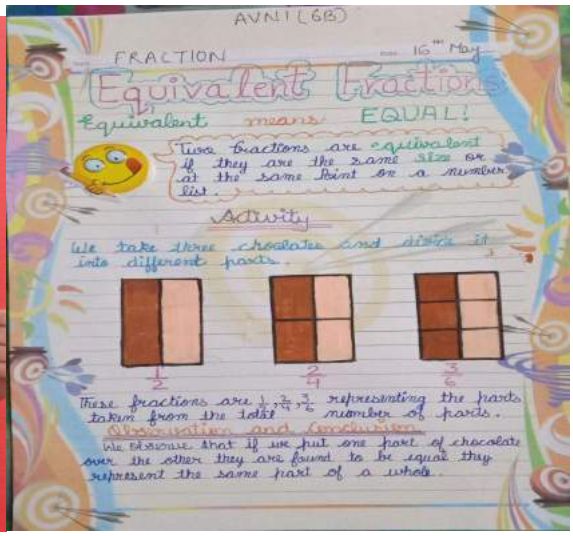
- ***Fraction in food***: Chocolate, bread, or any other food item needs to have the right measurement of all the ingredients.

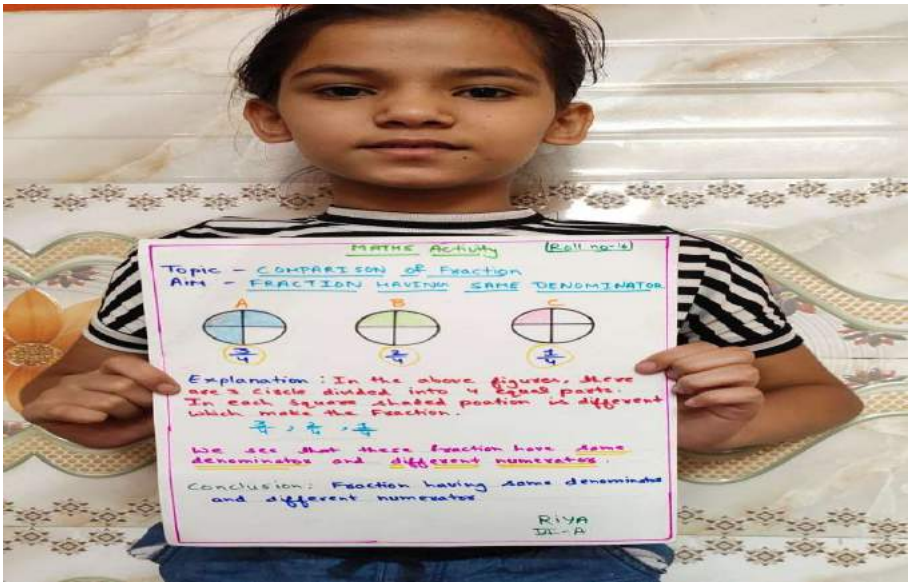
To make students of class VI aware of this fact , various real examples like pizza, chocolates from day –to day life were taken and concept of like and unlike fractions were explained to them.

A ***power point presentation*** was also shown to the students to give them further clarification.

Students thoroughly enjoyed the session , were able to relate the topic and came up with their own examples from day –to- day life. They shared their responses in the form of short video clips or images.







5.Symmetry Around Us

Date: 19th & 21st May 2021

"***Tidiness is a virtue, symmetry is often a constituent of beauty"***

Winston Churchill

SYMMETRY is variously defined as "proportion," "perfect, or “harmonious proportions," and " a structure that allows an object to be divided into parts of an equal shape and size ."

Mathematics Department organised a fun-filled and experiential session on Symmetry for classes 5 & 6.

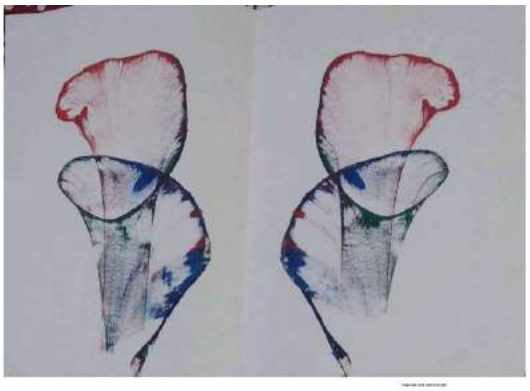
The Session started with recapitulation of what is symmetry, then progressed to show symmetry:

- In alphabets like ***A, D, H*** etc.;
- In Geometrical shapes like - ***rectangle, square***.
- In living beings like ***butterfly***.
- In monuments like ***Taj Mahal***, ***India gate***, ***Eiffel Tower*** etc.

Cut-out of some letters and power point presentation was used to show the symmetry in the above mentioned figures.Then an art integrated Activity was taken up to so show how students can make symmetrical designs.

Class VI students were advised to observe symmetry of different letters used in the word **AMBULANCE.**

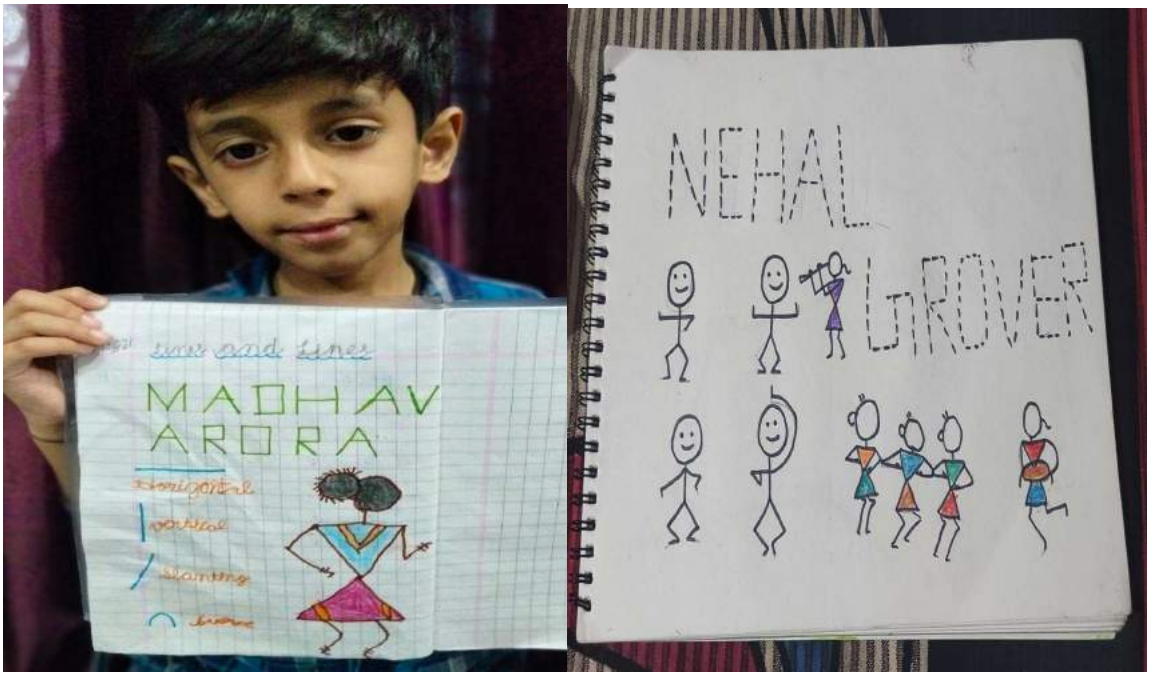
Students, thoroughly enjoyed the session, made beautiful symmetrical designs, observed the mirror image of word AMBULANCE and shared their responses.



6. “Lines & Lines”

Class 2&3

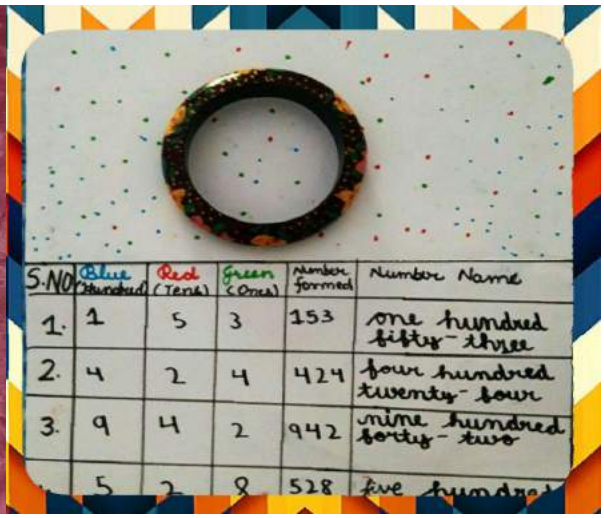
Lines & lines activity made children know about the vertical, horizontal,slanting & curved lines. Children wrote their names by writing the alphabets using straight lines. They were also told about the stick drawings, Warli paintings, where with the help of lines, shapes and patterns people use to decorate in the earlier time . They were shown Warli paintings, and thus appreciated the traditional, cultural art . After the session, they also tried theirs hands on making such drwaings/paintings . This art-integrated activity was enjoyed and liked by everyone.



7. “Bangle Throw”-

Class- 2 & 3

Bangle throw Activity was based on the concept of “place value”. On a sheet , with three or four coloured markers random dots were marked . Different colours represented different place values. Then a bangle is thrown on the sheet and the number of dots were counted and written . Then the final number formed had to be written along with its number name. In class 2, the Activity was till the hundreds place value & in class 3, the level increased to the thousands place.



S.NO	Blue (Hundred)	Red (Tens)	Green (Ones)	Number formed	Number Name
1.	1	5	3	153	one hundred fifty-three
2.	4	2	4	424	four hundred twenty-four
3.	9	4	2	942	nine hundred forty-two
	5	2	8	528	five hundred

8. “Geometrical shapes and patterns” -

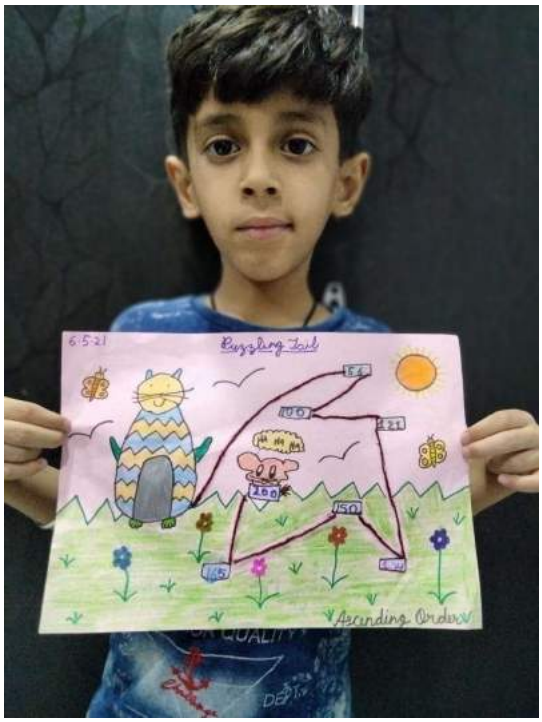
Class 2 Activity- Design a cardtudents were supposed to make a greeting card on the occasion of mother's day while using Geometrical shapes and patterns, a PPT full of different ideas were also

shown to them. In the process , they learnt about the different geometrical shapes and made their creative patterns, decorated their cards on their own to express the gratitude and love towards their mothers. It was an art- Integrated activity for which we had beautiful responses. The session was loved by everyone.

9. “Puzzling Tail”

Class 2

Puzzling Tail Activity was based on the theme concept of arranging the numbers in ascending order. In this, a naughty rat tied the long tail (shown with wool) with the different poles (numbers) . Students very interestingly solved the puzzle ,i.e., without crossing the tail, they arranged the numbers in ascending order and decorated their pictures & enjoyed the session.



10. “Addition”-

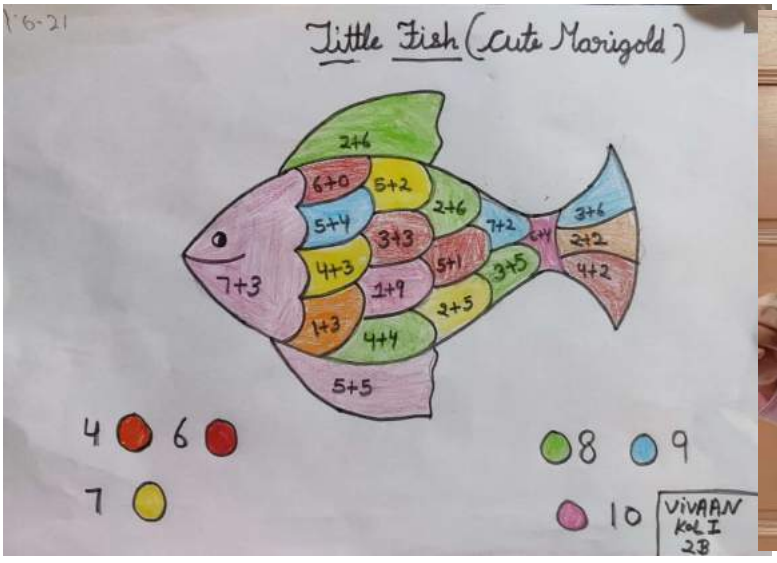
Class-2

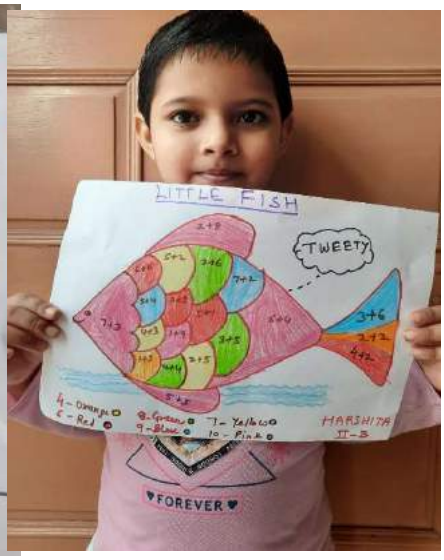
Activity- 1- Help me in Blooming!

Students were supposed to bloom their flowers, i.e., draw the possible petals of the flowers according to the given number, writen in the centre of the circle. Here they got to see the flexibility in the numbers & the algorithm (here , addition); and finally colour them.

Activity-2: Little Fish !

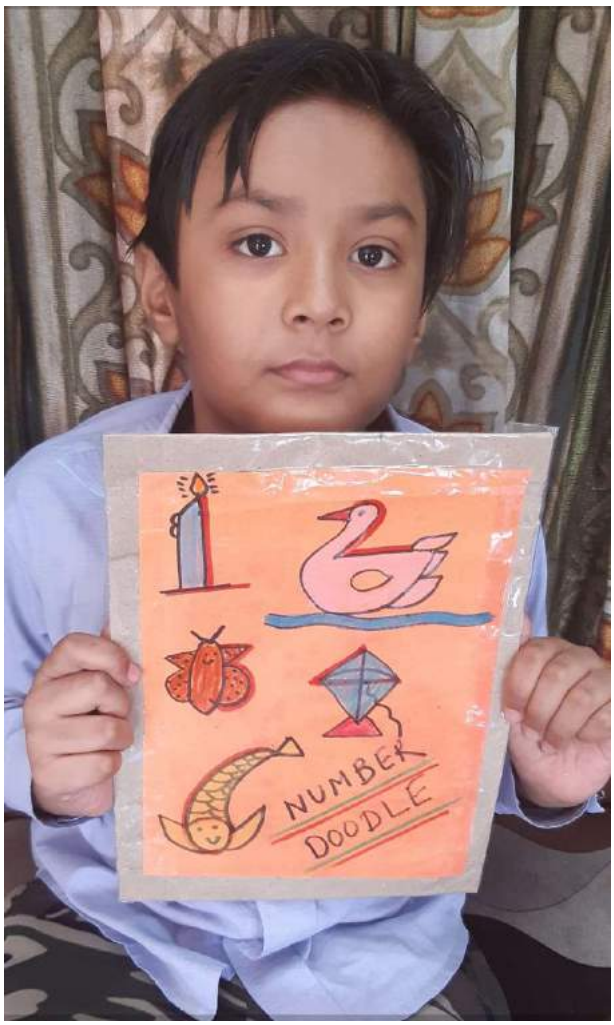
Little fish Activity was a kind of match the following & colouring activity in which they had to colour the respective sums with the colour represented in the circles below. Such as, all the possible sums/algorithms of 4 = 2+2, 1+3,4+0 should be founded in the fish and coloured orange. Children also gave the interesting names to their fishes.The Activity came to be very easy but yet very interesting, enriching in the learning of the concept addition and thus was appreciated by everyone.





11.“Number Doodle”

In class 2 & 4, number Doodle activity was conducted in which students were supposed to draw some objects, animals or any pictures with the help of numerals. Students got to see the beautification of mathematics that how art can be integrated with mathematics. To the students, who faces difficulty in drawing , it came as a helping hand. The activity was thoroughly enjoyed by the students and they poured out their all creativity in the session.



12. Alpana Designing : Class 5

Alpana is another form of rangoli made up of circles mainly. Students were told about the importance of making alpana on festivals, states where it's made and how it is made.
This activity helped them in not only identifying beautiful patterns and designs using circles but also in mastering the use of compass.

13.Roman Numbers Activity

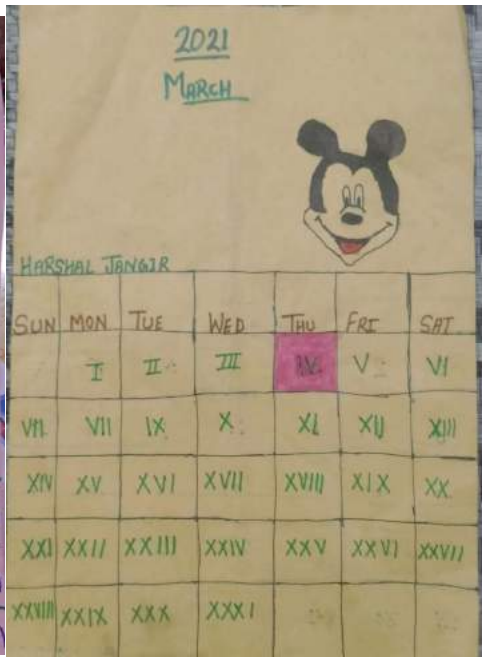
Roman numbers are the ways of writing numbers using alphabets as symbols. To make students familiar with them, activity sessions were organized for the students of class 3 and class 4.

Class 3: Make a Clock

The students were told to make a clock using Roman Numbers. This activity helped them to understand the concept of Clock & Roman numbers in a creative manner.

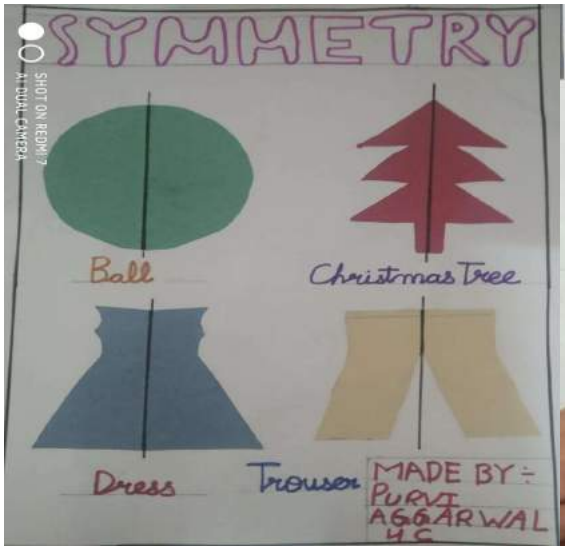
Class 4: Make a calendar

The students of class 4 designed calendar page of their birthday month. This activity helped them to know more about roman numbers and hone their creativity.



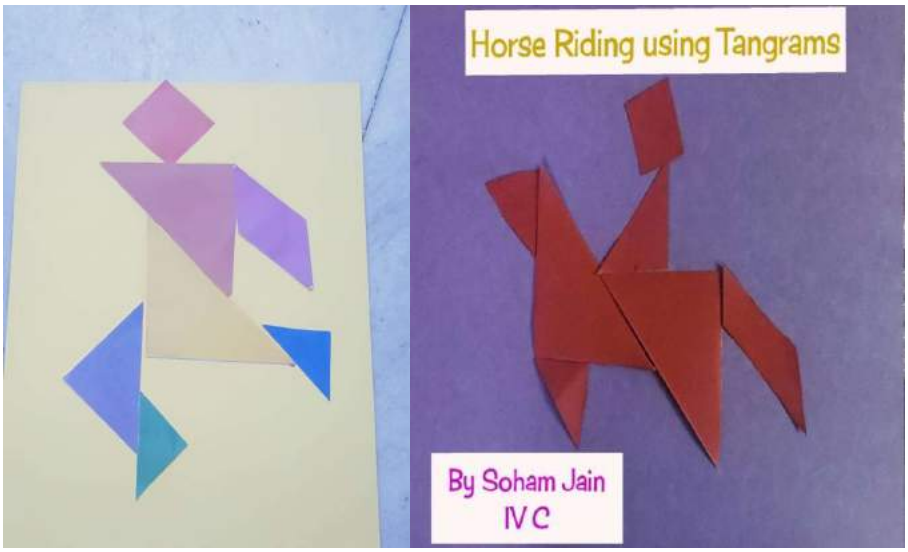
14.Symmetry activity

Symmetry is an important topic that helps students to understand beauty of nature and find symmetry in their surroundings. Students of class 4 were made aware of concept of symmetry through a power point presentation. They made beautiful symmetrical cutouts using craft papers.



15.Tangrams Activity

Tangrams is a Chinese puzzle that consists of seven pieces to be put together to get a human figure, animals or objects. Students of class four were told about tangrams and how to make pictures using all seven pieces. This activity helped the students in developing their thinking and creative skill.



16.Vedic Maths Tricks*

Classes: 6th ,7th , 8th

Maths has an important role in our life , it not only helps in day-to-day situations but also develops logical reasoning, abstract thinking and imagination.

Vedic mathematics is a super fast way of making all mathematical calculations easy and fast.

Importance of learning Vedic Maths

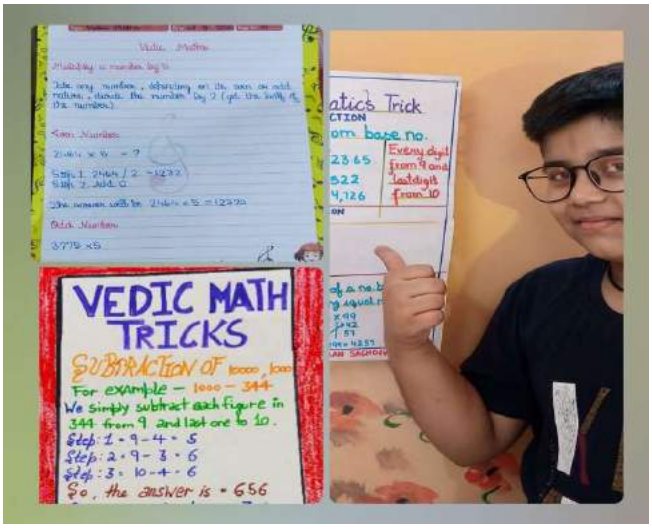
• Eradicates fear of maths completely. It is a fun filled way to do maths and arises interest in the child.

• Sharpens the mind, increases mental ability and intelligence.

• Increases speed and accuracy.

•Improves memory and boosts self confidence.

• Cultivates an interest for numbers.



Keeping this in view Mathematics department organised a session on Vedic Maths tricks during summer camp. Different tricks depending upon level of class were explained. Students were excited to find out answers in few seconds using these tricks.Even they explored new tricks and shared in class group .

Mathematics + Joy = Effective Learning

17.TRIANGLE CRAFT

Class : 7

Mathematics develops not only logical reasoning and abstract thinking but also give wings to our creativity and imagination.

"Mathematics and Art are the Pinnacle of Human creativity".

Triangle - the most simple geometrical shape with three sides and three angles , yet it is the most strong ,stable and balanced shape that has wide range of applications in our surroundings.

The students are exposed to this shape since their childhood days . This time during our summer camp, Mathematics department turned their knowledge of Triangles in to a platform to express their creativity in terms of beautiful craft pieces.

The session included demonstration of making

1. Various animals with Triangles.

2. Wall hangings and wall decor ideas.

3. Triangle shaped book marks .

Activity of feeling- MY GRATITUDE TREE

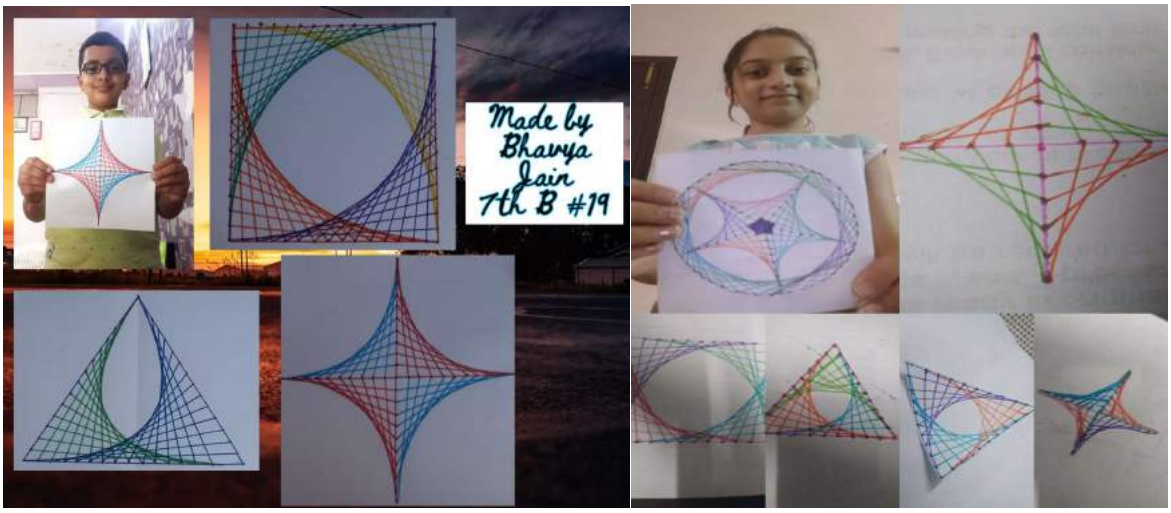
made with triangle leaves , expressing gratitude to all the people and things which are fundamental to our existence.

18.MAGIC WITH STRAIGHT LINES"

To integrate art with Mathematics, an activity Session Magic with Straight Lines was conducted in Class 7. Formation of curves and 3D illusion was demonstrated on white board and coloured pens by using straight lines .Students tried the magic with the teacher so that they understand the technique to make creative patterns using straight lines.

A power point presentation based on variety of designs was also shown.

The responses of students were overwhelming. Students enjoyed the session and participated enthusiastically. The session not only provided them a chance to learn but also an opportunity to hone their artistic skills.The session concluded with amazing and creative patterns made by students.



19. Visualising Solid shapes

Students of **class 7** were introduced to 3D shapes by making these solid shapes from their net.

Students of **class 8** derived the Euler formula by counting no of edges, vertices and faces in different shapes shown by the teacher. Colourful PPTs explaining different shapes were also shown to students to introduce the topic. After the session students were asked to made different solid shapes by making Net and hence verify Euler formula.

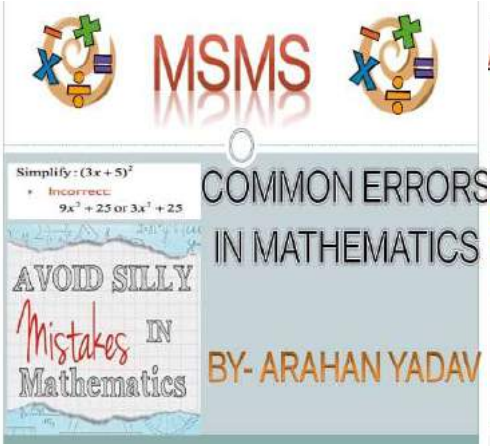
This activity not only give them hands-on experience of 3d shapes but also made their learning long lasting.

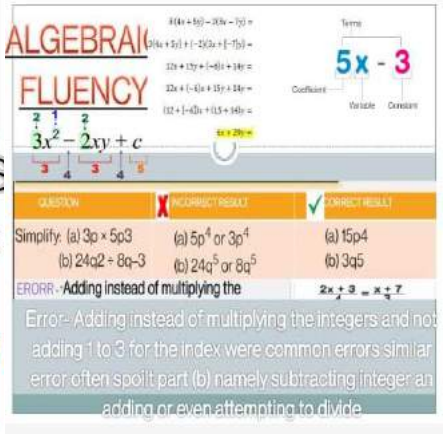
20. Square root spiral

Students of class 9 represented the newly learned irrational numbers in intresting and creative art form. The activity gave an expression to their artistic talent as well as strengthened their learning.

21. Common errors in Mathematics

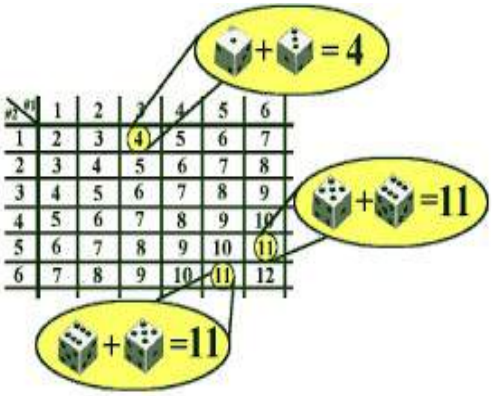
Students of **class9** were made to observe and contemplate on most common errors done while solving Mathematical problems, their causes and remedial steps to be taken, through a PPT. Then they gave a serious thought to their own mistakes and made personalised reports on the errors done by them and how to overcome these errors.





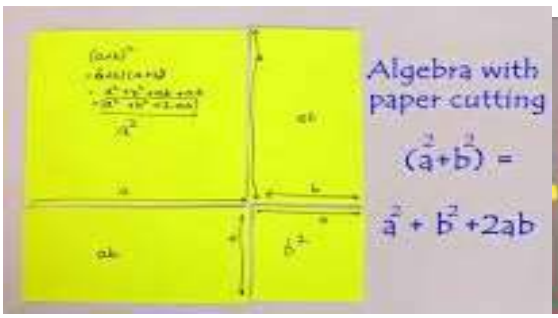
22. Probability- A game of chance

Class 9 students understood experimental probability through tossing a coin and throwing a dice and class 10 students studied the structure of playing cards to understand the approach of probability.



23. Algebraic identities through craft paper

Students proved the most common algebraic identities using craft papers.



24. Graphs of linear Inequalities:

Class 11

A system of linear Inequalities is useful to maximise or minimise a given value involving certain constraints. The graph of linear Inequalities provides a feasible region where the solution can be obtained.

25.Complex Number

Class 11

The equation $x^2 + 1=0$ has no real solution. So we need to extend the real number system to a larger system of complex numbers .

26.Word problems involving Inequalities.

Class 11

Students learned linear Inequalities in one or two variables. The study of inequalities is very useful in solving problems in the field of science, mathematics, statistics, economics etc.

27. Maxima/Minima

Class 12

Given a fixed value we can always determine the maximum or minimum of another associated value. Here perimeter of rectangle is fixed and we can show that area is maximum when it is a square.

28. Relations and Functions:

Class 12

There is a variety of relations we come across. It is a demonstration of one-one and onto function.

29. Application of Derivatives:

Class 12

Differentiation assumes an important role in field of science and commerce both. The activity suggests various uses of derivatives in different fields of study.