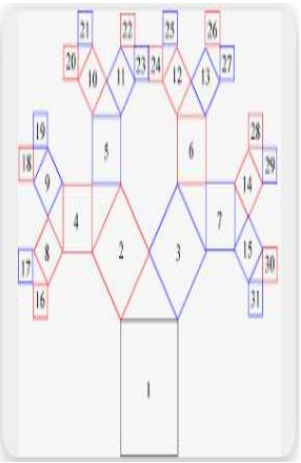
## Tools designed by students in Mathematics Education Lab

(I) **Trigonometry Activity Kit**: Through this activity kit, students were able to visualize and explore trigonometric principles. The hands-on approach enhanced their understanding of trigonometry, making it more accessible and enjoyable.

(II) **Pythagoras Tree and Ramanujan Magical Square**: These geometric activities stimulated students' creativity and problem-solving skills. They not only appreciated the beauty of mathematics but also gained insights into the interconnectedness of mathematical concepts.

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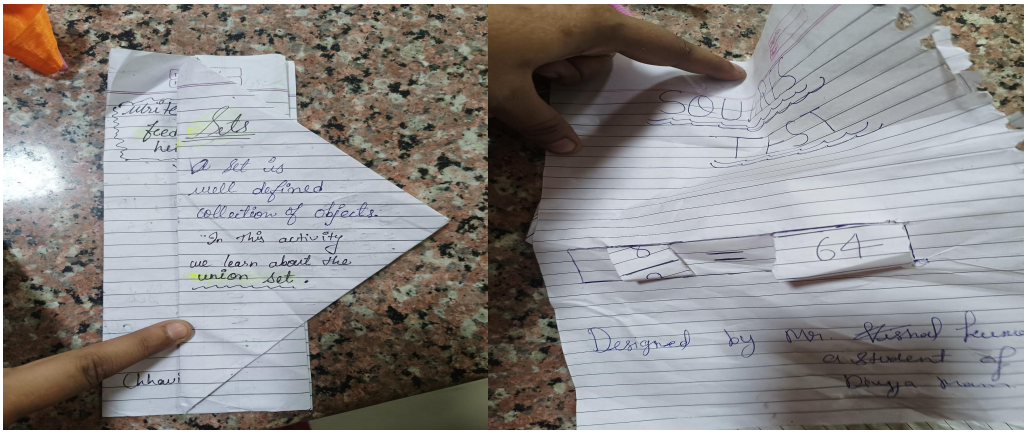
|---|---|---|---|
| DD | MM | yy | YY |
| YY+1 | yy-1 | MM-3 | DD+3 |
| MM-2 | DD+2 | YY+2 | yy-2 |
| yy+1 | YY-1 | DD+1 | MM-1 |

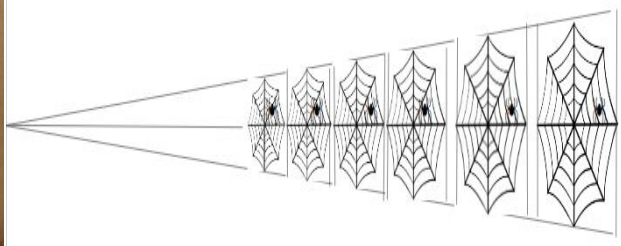
**Pythagoras Tree & Ramanujan magical square**

(III) **Set-Based Activity**: The set-based activity facilitates an intuitive understanding of set theory, enabling students to grasp abstract mathematical concepts with ease.



(IV) **Square and Square Root-Based Activity:** Through this activity, students develop a concrete understanding of square numbers and square roots, making arithmetic more meaningful and practical.

(V) **Magnetic Pad Board for Learning Relations and Functions:** The magnetic pad board provided an interactive and dynamic learning experience, enabling students to explore relations and functions visually.

(VI) **Illusion Activity:** This activity challenged students' perceptions and cognitive abilities, demonstrating the relevance of mathematics in everyday life and enriching their analytical skills.

(VII) **Magnetic Cube Box:** The self-designed Magnetic Cube Box is a collection of 27 smaller cubes coded in different colour with in-built magnets.

- The cubes are used to explain the concept of exponents and powers, helping students learn various formulae used in the operating with numbers with exponents.
- Understanding Area and Perimeter: The magnetic cube games allowed students to physically manipulate shapes, promoting a deeper comprehension of standardized methods of measurement of shapes and sizes.
- Demonstrating Visual Proofs: The same cubes were used to demonstrate visual proofs of a few famous mathematical identities, like $(a^2-b^2) = (a+b)(a-b)$, sum of n odd numbers, sum of n natural numbers, etc.

**Magnetic Cube Games**

**(VIII) Nail Board Game on Different Shapes and Figures:** Students engage in hands-on learning through the nail board game, enhancing their spatial awareness and geometric intuition.

**Nail Board Game**

**(IX) Mathematics Story Books:** The inclusion of a mathematics-themed storybook fosters a love for reading while integrating mathematical concepts into storytelling.

**(X) Straw Activities for Creating Different Mathematical Shapes:** This activity encourages creativity and imagination, inspiring students to construct various mathematical shapes using simple materials, verifying the properties of different polygons.

**(XI) Math Shapes Game and Tum Yum Game:** These mathematical games based on integers, shapes, mathematical operations make learning mathematics fun and interactive, helping students internalize calculations and practical applications of mathematical concepts.