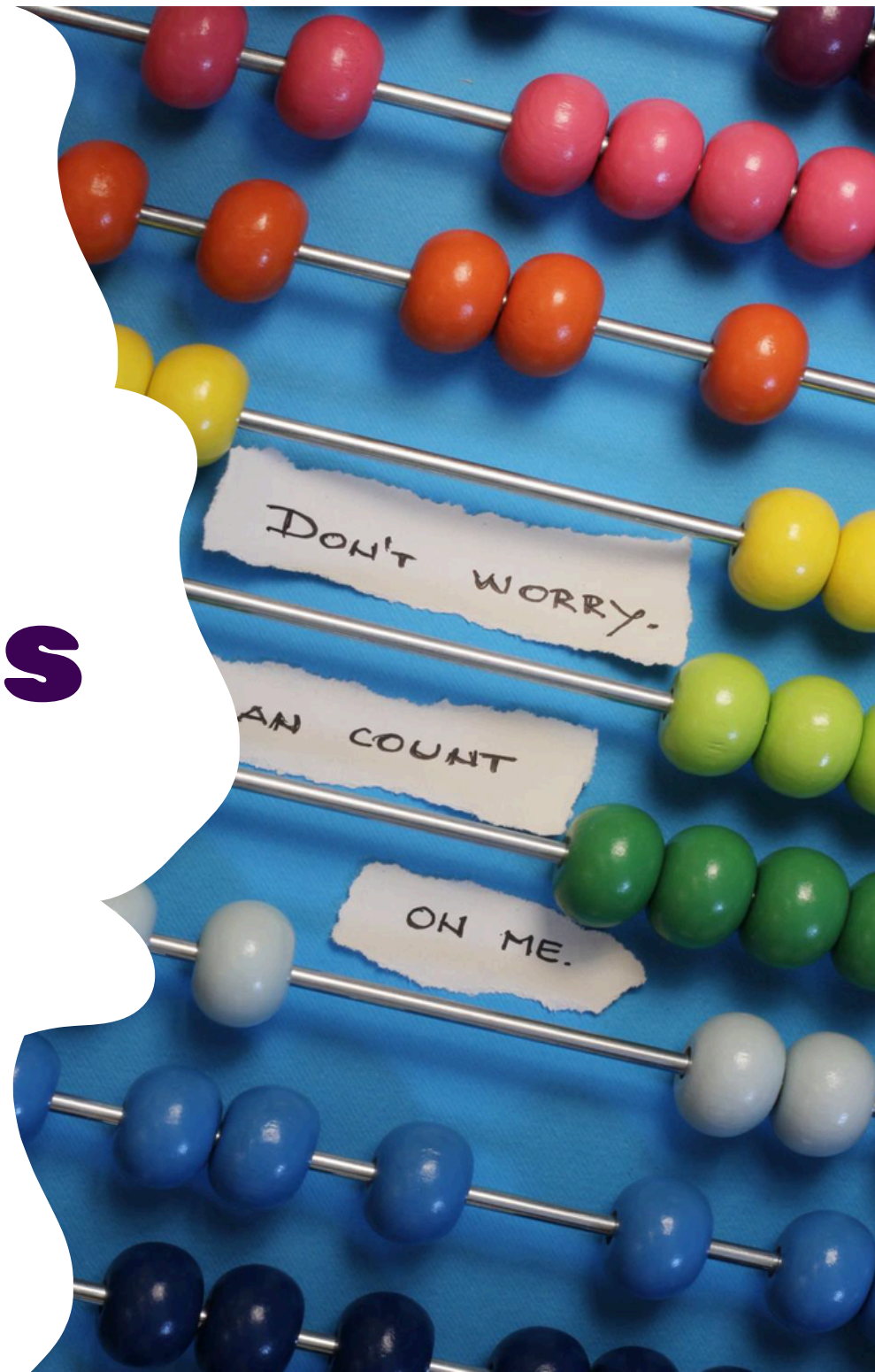


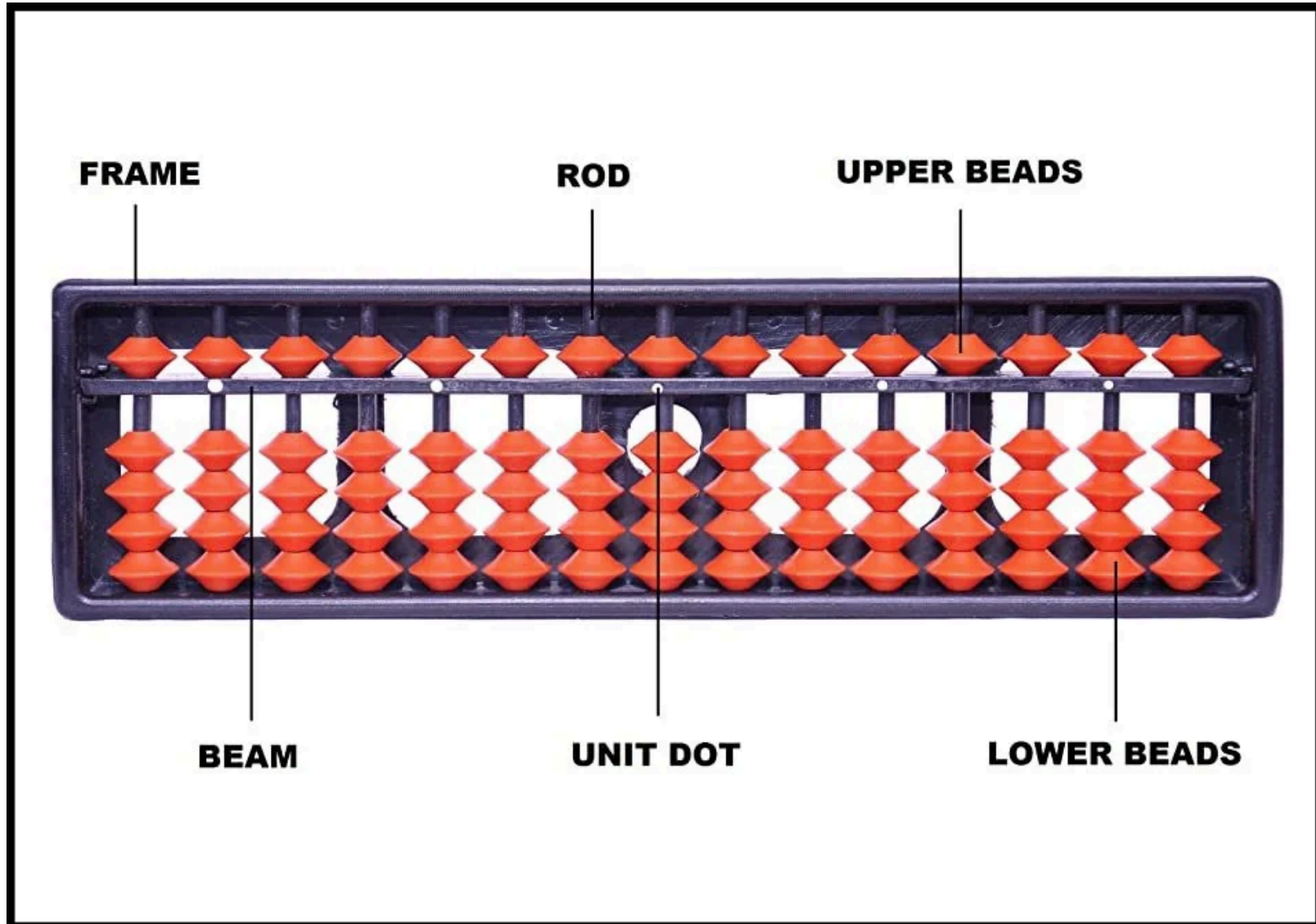


# Mental Abacus Magic

Educational Program Delivery



# What is an abacus?



## Program Overview



Effortlessly perform complex calculations mentally.



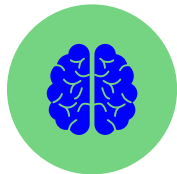
Tap into innate capabilities for mental calculations.



Master the art of mental abacus through engaging & interactive lessons.



Enhance problemsolving abilities with a powerful skill set.



Boost confidence through the development of astonishing mental calculation abilities.



Nurture a lifelong love for mathematics through practicing mental abacus.

## Program Expectations



*Perform lightningfast mental calculations, solving complex math problems with ease.*



*Develop exceptional concentration, focus, and memory skills.*



*Enhance logical thinking and analytical reasoning.*



*Cultivate a growth mindset, embracing challenges and overcoming obstacles.*



*Experience a renewed enthusiasm for mathematics, transforming it from a daunting subject to an exciting adventure.*

## Program Significance



"Mental Abacus Magic" enhances mental development in students.



Dynamic mental calculations stimulate cognitive abilities and strengthen neural connections.



Manipulating abacus beads improves concentration, focus, and mental agility.



Cultivates critical thinking, problem-solving, and logical reasoning skills.



Empowers students to approach math challenges confidently and creatively.



Stimulates cognitive abilities, strengthens neural connections, enhances concentration.



**Memory  
Processing Skills,  
Durability,  
&  
Adaptability**



"Mental Abacus Magic" enhances students' processing abilities effectively.



Teaches quick mental calculations, improving processing speed and efficiency.



Strengthens memory capacity and retrieval abilities.



Cultivates a resilient and malleable memory for effortless information retention and retrieval.



Benefits extend beyond math, aiding fast responses and quick thinking in other disciplines.

## Global Brain Wellness

# MENTAL ABACUS MAGIC

"Mental Abacus Magic" program promotes balanced brain development.

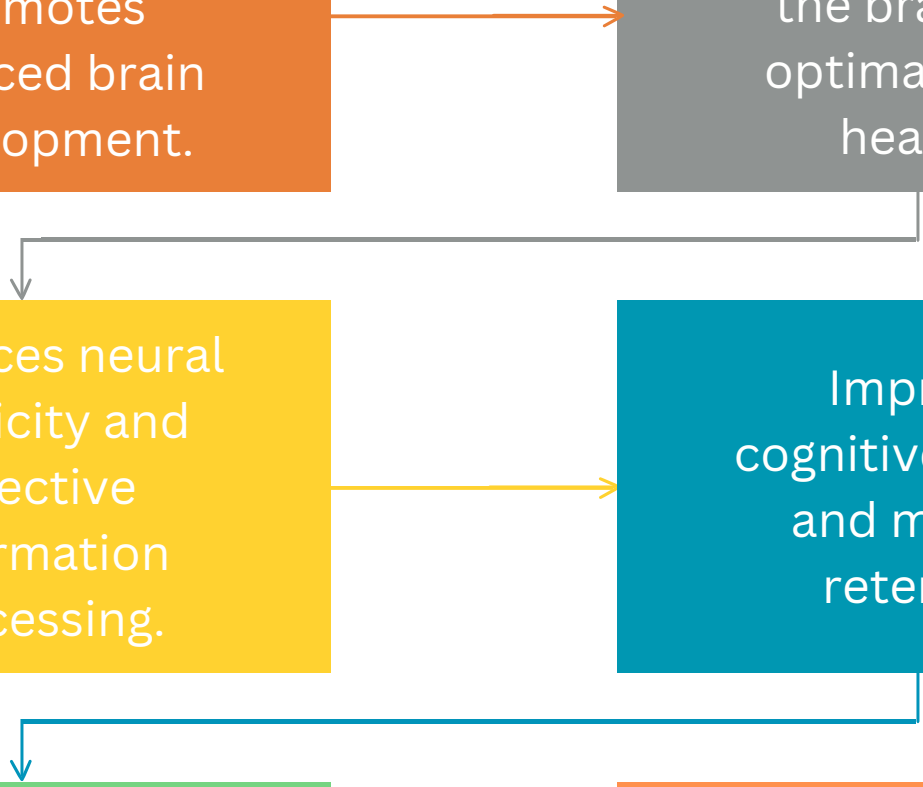
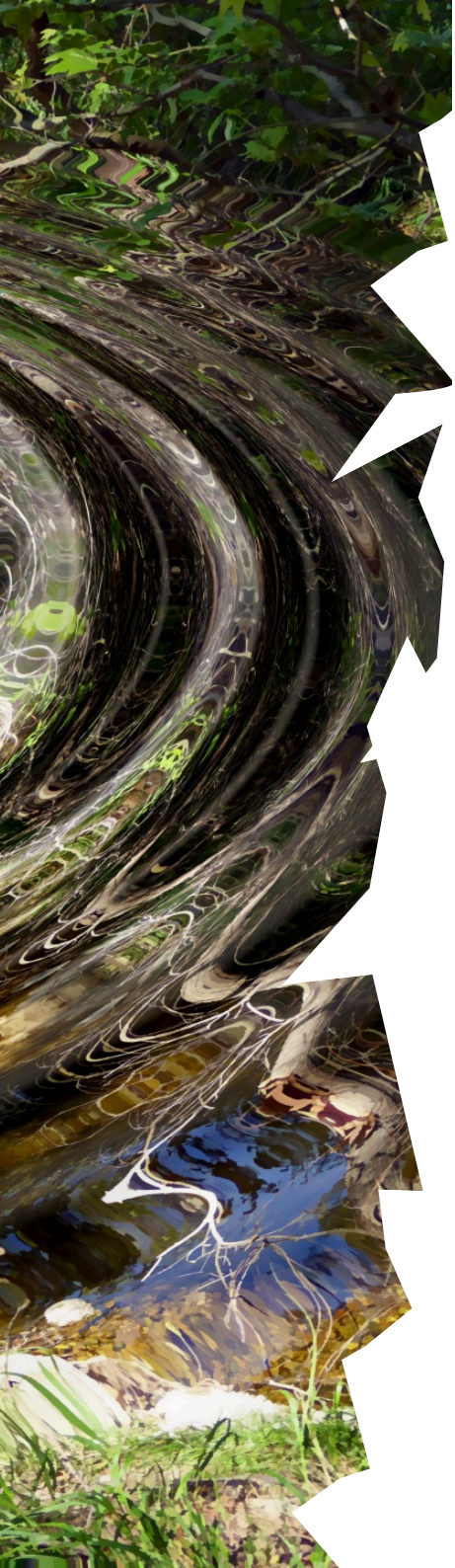
Stimulates both hemispheres of the brain for optimal brain health.

Enhances neural plasticity and effective information processing.

Improves cognitive abilities and memory retention.

Delays age-related cognitive decline.

Optimizes brain health and maximizes intellectual potential.



**Achieve  
Success in  
Math & Other  
Subjects**



“Mental Abacus Magic” enhances mental arithmetic abilities for quick and accurate problem-solving.



Improves cognitive abilities in various disciplines like science, physics, and logical reasoning.



Enables students to approach complex problems, make connections, and find innovative solutions.



Prepares students for a future with limitless possibilities.



Students soar to new academic heights and unleash their intellectual prowess.



Fosters mental agility, sharpens critical thinking, and improves brain health.



Unlocks true mathematical potential while developing essential cognitive skills.

## Specific Features of MAM program

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## Structured Curriculum:

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- Knowledgeable instructors
  - Interactive and collaborative learning
  - Individualized progress monitoring
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## Transferable Skills:

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- Confidence and motivation
  - Test-taking abilities
- 

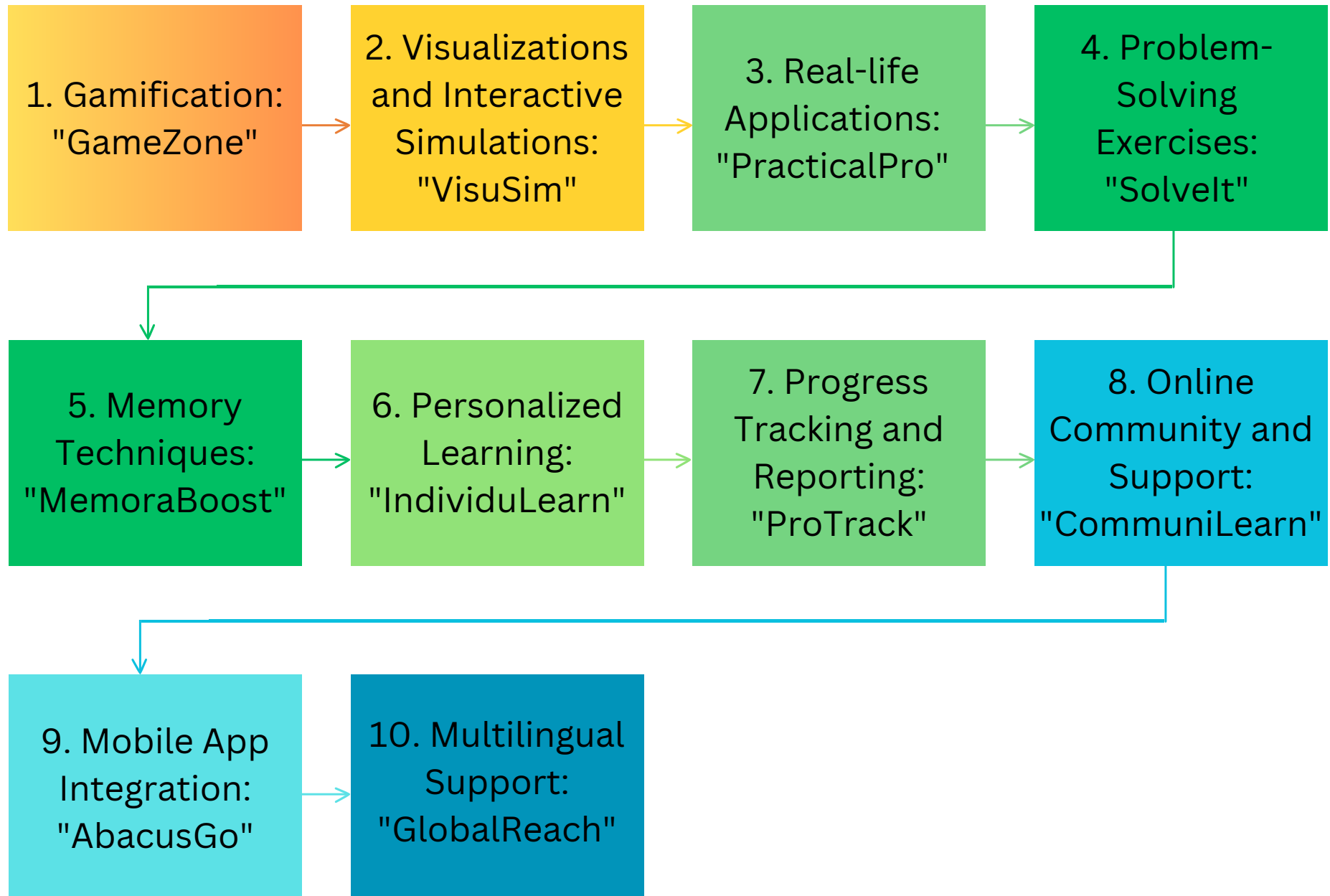
## Fun & Engaging Learning Activities:

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- Parental involvement
  - Long-term benefits
-



## Enhanced Program Features



# Teaching & Training Methodology

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## Set A:

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- 1. Demonstration and Modeling:** Show step-by-step processes and explain strategies.
- 2. Guided Practice:** Provide supervised sessions with individualized feedback.
- 3. Drill Exercises:** Reinforce skills through timed challenges.
- 4. Partner Activities:** Enhance understanding & accuracy through collaborative practice.
- 5. Problem-Solving Tasks:** Analyze real-life problems and solve them mentally.

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## Set A:

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- 6. Online Abacus Tools:** Utilize interactive digital tools for engaging practice.
- 7. Progress Tracking:** Regularly assess and provide feedback on students' progress.
- 8. Visual Representations:** Use charts or diagrams to aid understanding.
- 9. Abacus Games:** Incorporate fun educational games for enjoyable practice.
- 10. Abacus Competitions:** Organize friendly challenges to motivate & inspire.

## Level Progression Band



Progression	Level
1	Basic
2	Primary 1
3	Primary 2
4	Fundamental 1
5	Fundamental 2
6	Advance 1
7	Advance 2
8	Expert
9	Champion 1
10	Champion 2

# Mental Abacus Concept



1. Mental Abacus is a mental calculation technique that replicates the functions of a physical abacus using visualization and mental imagery.



2. It involves mentally manipulating and moving imaginary beads on an abacus, representing numbers and performing calculations.



3. The mental abacus enables individuals to perform rapid and accurate calculations mentally, without the need for external tools.



4. It enhances cognitive abilities by stimulating neural pathways and promoting mental agility, concentration, and problem-solving skills.



5. The concept of mental abacus can be applied to various mathematical operations, including addition, subtraction, multiplication, and division.



## Techniques For Performing Mental Calculations Using The Mental Abacus



**Visualization of the Abacus:**  
Mentally create a vivid image of the abacus, including its beads, columns, and their respective values.



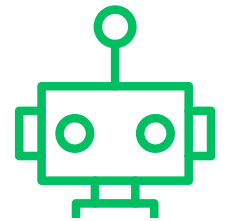
**Bead Manipulation:**  
Mentally move and manipulate the beads on the abacus to represent numbers and perform calculations.



**Chunking Numbers:**  
Break down larger numbers into smaller, more manageable chunks for easier mental calculation.

0.0

**Complementary Numbers:**  
Utilize the concept of complementary numbers to simplify calculations by finding pairs that add up to a multiple of 10.



**Mental Math Strategies:**  
Apply mental math strategies such as estimation, rounding, and regrouping to simplify calculations and improve efficiency.

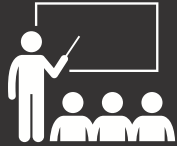
**Enhance  
Mental Math  
Skills & Speed**



**Practice Regularly:** Engage in consistent and focused practice sessions to improve mental math abilities and build speed over time.



**Develop Number Sense:** Strengthen number sense by developing a deep understanding of number relationships, patterns, and properties.



**Memorization Techniques:** Utilize mnemonic devices, visualization, and repetition to memorize key math facts and formulas for quick recall.



**Mental Calculation Strategies:** Learn and apply mental calculation strategies such as breaking numbers apart, using known facts, and applying mental shortcuts.



**Speed Drills and Timed Challenges:** Incorporate timed exercises and challenges to simulate real-time scenarios, increasing mental math speed and accuracy.

## **Mental Abacus:** ***How it Works***



**Visualization:** Mentally create an image of the abacus, with each column representing a specific place value.



**Bead Manipulation:** Mentally move the imaginary beads up and down the columns to represent numbers and perform calculations.



**Numeric Associations:** Assign values to each bead position, typically following a base-10 system.



**Mental Operations:** Perform addition, subtraction, multiplication, and division by mentally manipulating the beads and keeping track of the calculations.



**Speed and Accuracy:** With practice, develop the ability to perform rapid mental calculations using the mental abacus, enhancing both speed and accuracy in

## The Advantages of Using Mental Abacus



**Rapid Mental Calculation:** Enables individuals to perform complex calculations quickly and accurately without the need for external tools such as calculators.



**Enhanced Cognitive Skills:** Boosts cognitive abilities such as concentration, memory, and problem-solving through mental stimulation and visualization techniques.



**Improved Number Sense:** Develops a deeper understanding of number relationships, patterns, and properties, leading to improved overall mathematical proficiency.



**Portable and Convenient:** Requires no physical abacus, making it a portable and convenient tool for mental math practice anytime, anywhere.



**Transferable Skills:** Enhances critical thinking, logical reasoning, and analytical skills, which can be applied not only in mathematics but also in various academic



## **Imaginary Abacus: The Concept of the Mental Abacus & How it is Visualized**

**1. Mental Abacus Concept:** *Mental abacus is a technique where individuals perform calculations by mentally visualizing and manipulating an imaginary abacus.*

**2. Visual Representation:** *The mental abacus is visualized as a mental image of an actual abacus, with columns, beads, and their respective values.*

**3. Imaginary Bead Manipulation:** *In the mind's eye, individuals mentally move and manipulate the imaginary beads up and down the columns to represent numbers and perform calculations.*

**4. Column-Value Association:** *Each column of the mental abacus is associated with a specific place value, typically following a base-10 system (ones, tens, hundreds, etc.).*

**5. Calculation Execution:** *By mentally manipulating the imaginary beads on the mental abacus, individuals perform addition, subtraction, multiplication, and division, utilizing the visualization to keep track of the calculations.*

## The Structure of The Abacus With Beads & Columns & How They are Used for Calculations

**1. Abacus Structure:** The abacus consists of multiple columns, typically made of wood or metal, with movable beads arranged vertically in each column.

**2. Bead Values:** The beads on the abacus have assigned values based on their position in the column. The bottom bead represents the unit value, followed by beads representing tens, hundreds, and so on.

**3. Bead Manipulation:** To perform calculations, the beads are physically moved up or down within their columns. Each upward movement increases the value, while each downward movement decreases the value.

**4. Place Value System:** The abacus follows a place value system, where the position of the bead determines its numerical significance. The further left a bead is, the greater its value.

**5. Calculation Method:** By manipulating the beads on the abacus, users can perform arithmetic operations such as addition, subtraction, multiplication, and division. The final position of the beads represents the result of the calculation.



## The Technique of Associating Digits With Visualized Beads

**1. Visualization Technique:** Visualize beads for each digit, creating a mental link between numbers and their positions.

**2. Digit-Column Mapping:** Assign digits to specific abacus columns, establishing a consistent mapping between values and place value columns.

**3. Visual Representation:** Position visualized beads in columns based on associated digits during mental calculations.

**4. Numerical Significance:** The digit's position determines the visualized bead's position, reflecting its numerical value.

**5. Efficient Calculation:** By mentally associating digits with visualized beads, perform accurate and efficient mental calculations.

## The Technique of Associating Digits With Visualized Beads

**Mental Link:** *Create a connection between digits and visualized beads to enhance mental calculation abilities.*

**Consistent Mapping:** *Assign specific digits to corresponding columns on the imaginary abacus for a reliable and uniform association.*

**Visualization:** *Visualize the beads in their respective columns based on the digit's value during mental calculations.*

**Numerical Representation:** *The position of the digit determines the position of the visualized bead, representing its numerical significance.*

**Efficient Computation:** *By associating digits with visualized beads, perform calculations more effectively and accurately in mental arithmetic.*



## Step-by-step How to Perform Addition Using the Mental Abacus



## Addition:



1. Visualize Numbers: Mentally represent the numbers to be added and visualize the corresponding beads on the mental abacus.



2. Align Columns: Start with the rightmost column (units column) and mentally align the beads for both numbers in their respective columns.



3. Count and Move Beads: Begin counting and mentally moving the beads upward, starting from the units column, carrying over any excess beads to the next column when necessary.



4. Calculate Subtotals: Add the values of the beads in each column, mentally keeping track of the subtotals.



5. Sum Calculation: Once all columns are processed, combine the subtotals to obtain the final sum of the addition.





# Subtraction



1. Visualize Numbers: Mentally represent the numbers involved in the subtraction problem and visualize the corresponding beads on the mental abacus.



2. Align Columns: Start with the rightmost column (units column) and mentally align the beads for the minuend and subtrahend in their respective columns.



3. Count and Move Beads: Begin counting and mentally moving the beads downward, starting from the units column. Borrow beads from higher-value columns when necessary.



4. Calculate Differences: Subtract the values of the beads in each column, mentally keeping track of the differences. Borrow from higher-value columns, if needed.



5. Final Result: Once all columns are processed, combine the differences to obtain the final result of the subtraction.





# Multiplication

**1. Visualize Numbers:** *Mentally represent the numbers to be multiplied and visualize their corresponding beads on the mental abacus.*

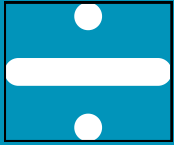
**2. Set Initial Positions:** *Align the beads in the units column and set them to their initial positions.*

**3. Multiplication Process:** *Begin multiplying the digits from right to left, moving and manipulating the beads accordingly.*

**4. Count and Carry Over:** *Count the number of beads in each column and carry over any excess to the next higher-value column.*

**5. Calculate Product:** *Once all columns are processed, combine the counted beads to obtain the final product of the multiplication.*





# Division

**1. Visualize Numbers:** *Mentally represent the dividend and divisor and visualize their corresponding beads on the mental abacus.*

**2. Set Initial Positions:** *Align the beads in the units column of the dividend and divisor, setting them to their initial positions.*

**3. Division Process:** *Begin dividing the digits from left to right, moving and manipulating the beads accordingly.*

**4. Count and Carry Over:** *Count the number of times the divisor can be subtracted from the dividend in each step, adjusting the bead positions and carrying over any excess.*

**5. Calculate Quotient:** *Once all digits are processed, combine the counted results to obtain the final quotient of the division.*



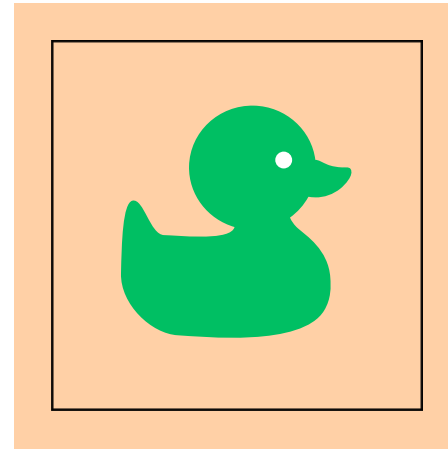
## Tips for Mastering Mental Abacus

## Practice Regularly to Improve Mental Abacus Skills:



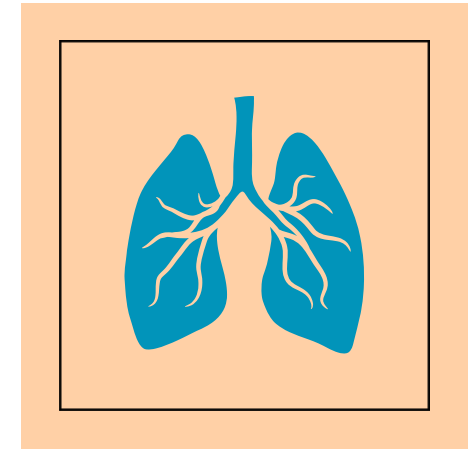
### 1. **Consistency:**

*engage in regular and consistent practice sessions to reinforce mental abacus techniques and enhance proficiency.*



### 2. **Skill development:**

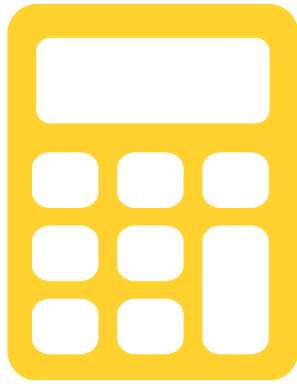
*dedicate focused practice time to develop mental calculation speed, accuracy, and bead manipulation abilities.*



### 3. **Progress over time:**

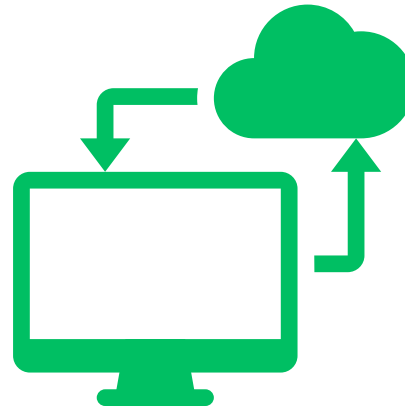
*with consistent practice, observe gradual improvement in mental abacus skills, leading to increased efficiency and confidence in mathematical calculations.*

# Start with Simple Calculations and Gradually Progress



## 1. Foundational Skills:

*Begin by practicing basic calculations using the mental abacus, such as single-digit addition and subtraction, to build a strong foundation.*



## 2. Incremental Complexity:

*Gradually increase the difficulty level by introducing two-digit, three-digit, and larger numbers for addition, subtraction, multiplication, and division.*



## 3. Progressive Challenges:

*As skills improve, challenge yourself with more complex calculations, incorporating multi-step problems and higher-digit numbers to further enhance mental abacus proficiency.*

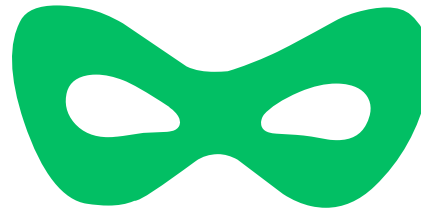


# Visualize and Imagine During Calculations



## 1. Mental Imagery:

*Encourage participants to vividly visualize the abacus and its beads in their mind's eye during mental calculations.*



## 2. Detailed Visualization:

*Emphasize the importance of imagining the specific positions, colors, and movements of the beads to enhance concentration and accuracy.*



## 3. Engage Senses:

*Encourage participants to engage their senses, mentally feeling the beads and hearing the sound of their movement, to create a more immersive and effective mental abacus experience.*