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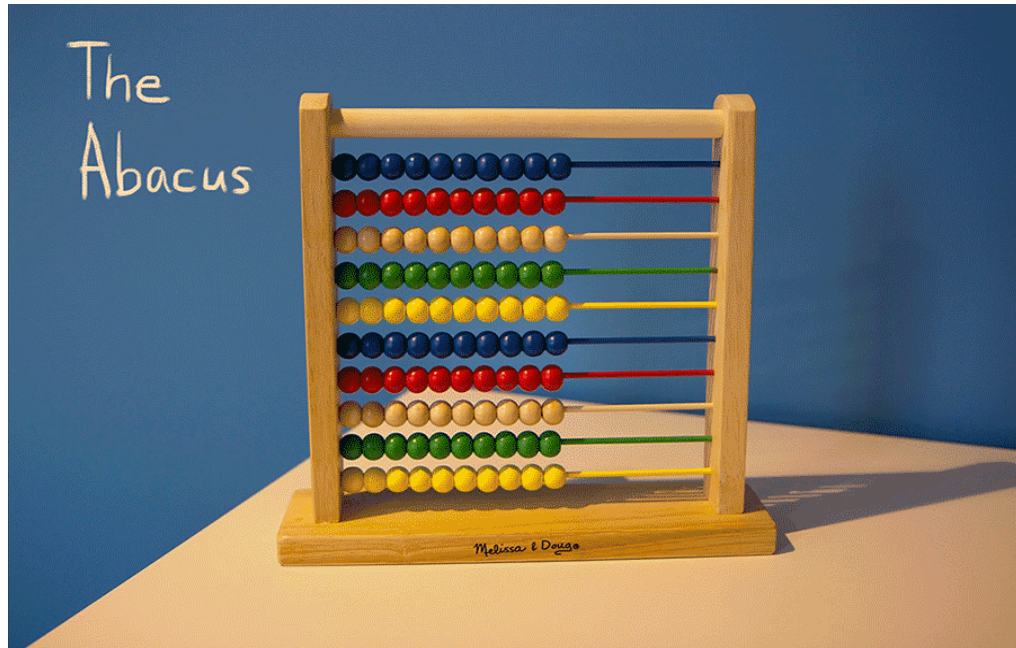
**Unlocking Math
Fluency With
the Abacus**

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Unlocking Math Fluency with the Abacus: Mastering Arithmetic



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Goals and Objectives

The purpose of this project is to help elementary teachers make math class fun through engaging games and hands-on activities. Using the abacus in the classroom will help students develop a deeper understanding of key mathematical concepts such as number sense, and the four fundamental operations of arithmetic. This workshop will enhance your students' active engagement, collaboration, high order thinking, and problem solving. It fosters a positive attitude towards mathematics and promotes fun learning experiences and long-term retention of essential mathematical concepts.

Teachers attending this session of Idea Expo will explore innovative ways of teaching mathematics through hands-on-experiences, increasing students' engagements, and deepening understanding of mathematical concepts.

Teachers can also use their own creativity to develop their own ideas and expand on the practice and concepts presented in the workshop.

Florida Standards

MA.2.NSO.1 Understand the place value of three-digit numbers.

MA.2.NSO.2 Add and subtract two- and three-digit whole numbers.

MA.2.AR.1 Solve addition problems with sums between 0 and 100 and related subtraction problems.

MA.2.AR.3 Develop an understanding of multiplication.

MA.3.NSO.1 Understand the place value of four-digit numbers.

MA.3.NSO.2 Add and subtract whole multi-digit numbers. Build an understanding of multiplication and division operations.

MA.3.AR.1 Solve multiplication and division problems.

MA.4.NSO.1 Understand the place value for multi-digit numbers.

MA.5.NSO.2 Add, subtract, multiply and divide multi-digit numbers.

Course Outline Overview

& Lesson Plan

1. Make different multi-digit numbers using Abacus beads
2. Add and subtract numbers using the Abacus
3. Multiply Numbers using the Abacus
4. Use Abacus to perform division



Lesson Plan: Mastering Arithmetic with the Abacus

Grade Level: 1-5

Duration: 5 sessions (45–60 minutes each)

Materials Needed:

- Student abacuses (one per student)
- Whiteboard or projector
- Worksheets with practice problems
- Visual aids/posters of abacus structure
- Optional: digital abacus apps or simulations

Learning Objectives

By the end of this unit, students will be able to:

1. Identify and explain the parts of an abacus.
2. Represent multi-digit numbers on the abacus.
3. Perform addition and subtraction using the abacus.
4. Understand and apply multiplication and division using the abacus.
5. Develop mental math skills through abacus visualization.



Session Breakdown

Session 1: Introduction to the Abacus

Objective: Understand the structure and purpose of the abacus.

- **Warm-up:** Ask students how they usually do math and introduce the abacus as a historical and modern tool.
- **Instruction:**
 - Parts of the abacus: frame, rods, beads (heaven and earth beads), place values.
 - Demonstrate how to reset the abacus.
- **Activity:**
 - Practice placing single-digit and two-digit numbers.
 - Group challenge: Who can show 37 the fastest?
- **Assessment:** Quick quiz on abacus parts and place values.

Session 2: Representing Multi-Digit Numbers

Objective: Learn to represent numbers up to 9999.

- **Review:** Recap parts of the abacus.
- **Instruction:**
 - Place values: units, tens, hundreds, thousands.
 - Demonstrate how to represent numbers like 1,234 or 9,876.
- **Activity:**
 - Students practice with teacher-guided examples.
 - Partner game: One student says a number, the other shows it.
- **Assessment:** Worksheet with number representation tasks.

Session 3: Addition and Subtraction

Objective: Perform basic addition and subtraction using the abacus.

- **Review:** Number placement.
- **Instruction:**
 - Show how to add and subtract using bead movements.
 - Explain carrying and borrowing.
- **Activity:**

- Practice problems: $123 + 456$, $789 - 234$.
- Timed drills for fluency.
- **Assessment:** Exit ticket with 3 problems to solve.

Session 4: Multiplication

Objective: Multiply numbers using repeated addition and place value.

- **Review:** Addition on the abacus.
- **Instruction:**
 - Explain multiplication as repeated addition.
 - Demonstrate 3×4 , then 12×3 using place value.
- **Activity:**
 - Students solve problems like 23×2 , 45×3 .
 - Group challenge: Solve a word problem using the abacus.
- **Assessment:** Worksheet with multiplication problems.

Session 5: Division

Objective: Divide numbers using repeated subtraction and grouping.

- **Review:** Multiplication and subtraction.
- **Instruction:**
 - Explain division as repeated subtraction.
 - Demonstrate $12 \div 3$, then $84 \div 4$.
- **Activity:**
 - Practice problems: $36 \div 6$, $72 \div 8$.
 - Partner quiz: One student gives a problem, the other solves it.
- **Assessment:** Mini test covering all four operations.



Extension Activities

- **Mental Abacus:** Practice visualizing the abacus to solve problems mentally.
- **Games:** Use flashcards or apps for speed drills.
- **Cross-curricular activities:** Explore the history of the abacus in different cultures.

Resources List

Websites for Learning Abacus

1. [Learning the Abacus](#)

Offers step-by-step tutorials for all operations (addition, subtraction, multiplication, division, decimals, and fractions) using Japanese and Cranmer abacuses.

2. [Practice Abacus Online](#)

Interactive tools like flashcards, speed rounds, and infinite mode for practicing all four operations. Great for competitions and self-paced learning.

3. [Abacus and Vedic Maths](#)

Free tutorials, worksheets, e-books, and community forums for learners and educators.

Recommended Books

1. ***How to Use a Chinese Abacus***

A step-by-step guide covering all operations, including roots. Great for beginners and parents

2. ***Abacus Mind Math Level 1 Workbook***

Focuses on the Japanese Soroban abacus with practice exercises for kids

3. ***Mastering Abacus: A Comprehensive Course* by Takashi Kojima**

A deeper dive into abacus techniques and applications for advanced learners

4. ***Abacus: The Mystery of the Bead*** by Alex B

A fun, story-based approach to learning abacus for younger students