Our written examinations give you the opportunity to demonstrate your understanding of the Montessori elementary program and your ability to communicate information clearly and appropriately in writing. The time allocation of 3 1/2 hours is intended to allow you to plan the answer, write and edit. You are permitted to leave the site to work and to refer to books and other resources.

Answers may be typed or handwritten legibly. Prepare your answer as if it is to be published and read by staff or parents at your school. Answers must be your own work and joint work is not permitted. Provide the specific source and reference for any quotes used. Write your answer on 8 1/2" by 11" sheets, with your name at the top of each page.

Before you hand in your paper, check the following:
- Proofread carefully for grammar and spelling.
- Write your name and the date at the top of this sheet, place a check mark next to the question you have chosen to answer, and staple this sheet as a cover to your answer papers. Do not add additional covers or sheet protectors.
- Make a copy of your paper.

QUESTION 4. Select one of the following:

a. The teachers of the Early Childhood classes at your school have requested an introduction to the Lower Elementary Math curriculum. Your administrator has asked you to give a two hour presentation at the next school teacher inservice meeting. Prepare an outline of your presentation, then write the full text (essay form) of your introduction and conclusion. NOTE: Expect the teachers to be familiar with materials for performing operations with thousands. They will be most interested in the materials that enable calculation involving millions.

OR

b. Write an article for your local newspaper on the Montessori Math program in the Lower Elementary classroom. Include discussion of the following:
   i. The use of manipulative materials.
   ii. How the materials gradually prepare the children to work problems abstractly on paper.
   iii. The benefits of the Montessori math program.

For MECR instructor use:

- Outstanding 100 pts  __ Excellent: 90 pts  __ Very Good 80 pts  __ Satisfactory 70 pts
- Return to student for revision

Comments:
Neena Massey

Exam 4

The Lower Elementary Montessori Math program is full of sequenced activities aimed at helping children obtain a higher level of mathematical concepts already begun in the primary classroom. Since most of the students come into 1st grade with knowledge of the thousands, it is my job to help clarify that understanding and enable students to engage in activities that teach them place values in the millions. Students will work with numbered problems that get more and more difficult as time progresses. It isn’t uncommon for students to be working on addition, subtraction, multiplication and division facts, and operations simultaneously. I would first assess the child and place him/her at the appropriate level of activities. For example, if the student demonstrates a very clear understanding of addition, I would move towards teaching multiplication, then subtraction and finally division. As you can see from the outline below, students learn the mathematical operations in the first year, and add new concepts as they are ready for them.

Sequence Overview of All Materials Covered in Each Grade Level

**First Level**

*Numbers to 1000*
- Numbers 0-10
- Numbers to 1000
- Hundred Board
- Short Chains
- Long Chains
- Golden Bead Material
- Stamp Game
- Dot Board
Small Bead Frame

Memorization of Basic Facts
- Positive Snake Games
- Addition with Bead Bars
- Multiplication with Bead Bars
- Multiplication Snake Game
- Addition Strip Board and Charts
- Subtraction Strip Board and Charts
- Multiplication Board and Charts
- Division Board and Charts
  *Story Problems (Very Important)
  Formats for Equation Problems

Place Value & Operations in Millions
- Geometric Hierarchy
- Large Bead Frame 1-digit
- Checkerboard
- Test Tube Division 1-digit
- Fractions Inset
- Money
- Clock

All the above materials allow the student to begin to develop the following concepts:
- Addition Operations
- Addition Memorization
  - *Applications*
- Subtraction Operations
- Subtraction Memorization
  - *Applications*
- Multiplication Operations
- Multiplication Memorization
  - *Applications*
- Division Operations

- Money
- Clock

Second/Third Level

Practice with All of the Above and the Introduction to the Following:

Memorization of Basic Facts
- Subtraction with Snake Game
- Multiplication of a Binomial by a Trinomial
- Multiplication of a Trinomial by a Trinomial
- Passage from one Square to Another
**Place Value in the Millions**
- Large Bead Frame 2-3 Digit Multiplier
- Flat Golden Bead Frame
- Bank Game

**Multiples and Factors**
- Sieve of Eratosthenes
- Decanomial

All the above materials allow the student to begin to develop the following concepts:

**Addition Operations**
- Addition Memorization

**Subtraction Operations**
- Subtraction Memorization

**Multiplication Operations w/2-3 digit multipliers**
- Multiplication Memorization

**Division Operations w/2-3 digit multipliers**
- Decanomial (3rd level)
- Decimal Fractions (3rd level)

By giving students a very good foundation of math, I hope to inspire them to want to learn more in the upper elementary classroom after they complete their third year with me. It is my goal to keep children interested and fascinated with mathematical concepts and operations. The materials used in the lower elementary classroom are enticing, interesting, beautiful and effective in aiding students towards abstraction of basic math skills.

*Nice overview! We need to be sure children have many opportunities to apply math skills and study problems using graphs and charts. Using graphs in real life situations.*