A SELF-TEACHING PROGRAM

Developmental Mathematics

Mathematics Programs Associates (MPA), a Long Island based family enterprise providing educational products and consulting services, exists today primarily due to the vision and determination of its founder, Dr. L. George Saad. During the early 1950's, Dr. Saad taught mathematics education at the University of Ain-shams in Cairo, Egypt. In 1954, with an innovative idea for self-induced learning, he matriculated as a doctoral candidate at the University of Birmingham in England. During the following three years, Dr. Saad devoted his research to the elementary and secondary students' understanding of basic mathematics and developed the methodology for a self-teaching mathematics program. In 1957, Dr. Saad received the Ph.D degree in mathematics education. He then returned to Cairo and, sponsored by the Egyptian government, began the development of a mathematics curriculum for implementation throughout the country's elementary school system. In 1959, samples of Dr. Saad's materials were pilot tested within the Cairo schools and, a few years later, his curriculum was being used throughout the country and in other Middle East nations. Due to his marked popularity in the Middle East, in 1969, Dr. Saad was invited to the United States as a visiting professor at the State University of New York, and in the same year, accepted a professorship at Long Island University. In 1970, with an inspiration to repeat his success, Dr. Saad immigrated his family to the United States and began working on the rudiments of a self-teaching mathematics workbook series. In 1974, he incorporated MPA in New York to design, develop, and distribute his work. Today, educators and students in the United States, and many other nations throughout the world, are benefiting from Dr. Saad's lifelong achievement...

Developmental Mathematics:

A Self-Teaching Program

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MPA
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Teaching From The Right Angle

Developmental Mathematics..........By L. George Saad, Ph.D.

OBJECTIVES

Developmental Mathematics is the end product of decades of research conducted by Dr. L. George Saad, in which many schools, educators, and students have been involved.

The primary objectives of the project have been:

- To identify the basic mathematical knowledge that forms the foundation on which future learning is built.
- To organize basic mathematics in a structure that is psychologically and logically valid.
- To adopt a teaching strategy that ensures the understanding of concepts and ideas, the quick recall of facts, the accurate performance of skills, and the ability to apply knowledge.
- To use the dimensions outlined above in producing materials that may be used by educators and students.

STRATEGY

To learn a new item of knowledge, the student is taken through four stages:

- Acquiring a physical significance for the item under study through a concrete or semi-concrete model. Working through the model, the student is guided to obtain the idea.
- Acquiring an abstract significance for the item, through the use of numbers without physical representation.
- Recalling facts and performing computational skills quickly and correctly, through *meaningful* practice.
- Applying the freshly learned knowledge to situations that call for its use.

When the student leaves the last stage, mastery is secured, and the new item is integrated into the body of knowledge previously built.

APPROACH

Developmental Mathematics is a number learning program that starts with counting, and guides the student into advanced math disciplines. It deals with numbers as they evolve. It presents the number as a concept, how it is read and written, and then teaches all facts and computational skills in which it is involved. When all work with a certain type of number is exhausted, a new type is brought into the focus of study.

Each fact or computation is presented as a problem to be solved, and then the student is guided to see, and participate in, how the fact is derived and how the computation is built. The learner is trained to use acquired knowledge in generating new knowledge, which is the essence of mathematical thinking. In this manner, the student's knowledge is consolidated as a coherent body, rather than a collection of unrelated facts and skills.

The program has been designed for, and proven widely effective over decades in, the following learning settings:

- A self-paced program for elementary, junior high, and high school students.
- A resource room program for elementary, junior high, and high school students.
- A basic program in elementary and middle schools.
- A program for special education students in self-contained classes.

Ordering Information

The program is available in a variety of packaging configurations, ranging from individual levels to sets of the entire series. For information on ordering or assistance in implementing the program into a specific environment, please contact us at...

516.643.9300

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STRUCTURE

In Developmental Mathematics, number learning has been structured into major areas which are delineated as *Levels*. The levels are presented in a series of workbooks in which each level is composed of several sections called *units*. The contents of each unit are sequenced as day to day instructional objectives. There are currently sixteen workbook levels in publication, with several more in the final stages of development. Together, the workbooks cover all of the concepts, facts, and computational skills needed to master the foundations of mathematics.

LEVEL 1. **Ones:** Concepts and Symbols
LEVEL 2. **Ones:** Addition Concepts and Basic Facts
LEVEL 3. **Ones:** Subtraction Concepts and Basic Facts
LEVEL 4. **Tens:** Concepts, Addition and Subtraction Facts
LEVEL 5. **Tens & Ones:** Simple Additions and Subtractions
LEVEL 6. **Tens & Ones:** Adding and Grouping
LEVEL 7. **Tens & Ones:** Subtracting with Exchange
LEVEL 8. **Multiplication:** Concepts and Facts
LEVEL 9. **Division:** Concepts and Facts
LEVEL 10. **Hundreds and 3-Unit Numbers:** Concepts, Addition and Subtraction Skills
LEVEL 11. **Three-Unit Numbers:** Multiplication and Division Skills
LEVEL 12. **Thousands and Large Numbers:** Concepts and Skills
LEVEL 13. **Decimal Fractions and the Metric System**
LEVEL 14. **Fractions:** Concepts and Basic Skills
LEVEL 15. **Fractions:** Advanced Skills
LEVEL 16. **Special Topics:** Ratio, Percent, Graphs,...etc.

DIAGNOSTIC TESTS: Each level is accompanied by a detailed diagnostic test, designed to assist the teacher in tracing the student's thinking and pinpointing his or her deficiencies.

EDUCATOR'S GUIDES & SOLUTION MANUALS: For each level, there is an Educator's Guide or a Solution Manual. These guides allow the educator to assist the student and trace his or her responses.

STUDENT PROGRESS CHARTS: With each level, there is a chart that lists the level's objectives, with related pages. The chart serves as an index for lesson planning and student evaluation, making the program easy to manage.