



# KEY COMPONENTS OF MEBA™

## **I. Sequenced Instructional Modes (SIMS™)**

One of the basic components of MEBA is a framework for sequencing and connecting mathematics concepts from concrete to pictorial to symbolic representations. This process develops an understanding and memory of mathematics that lasts a lifetime and can be applied in numerous real-life contexts.

## **II. Spatial Imagery Development**

MEBA stresses the importance of linking arithmetic ideas with corresponding spatial/geometric relationships. Concrete and pictorial models are arranged in particular patterns so that students learn to visualize and solve mathematics problems mentally.

## **III. Routine and Nonroutine Problem Solving**

Building a model and drawing a picture of a problem are two basic problem-solving strategies. The MEBA framework, incorporates these strategies as an ongoing part of instruction. Beginning with the concrete level, word problems are presented and simulated with physical models. This process continues through the symbolic level. Students are continually called upon to use oral and written language to describe their thought processes. The strategic **Mathematics Pentathlon®** games are used to develop two critical problem-solving skills: deductive and inductive reasoning.

## **IV. Connecting Arithmetic, Spatial/Geometric, and Logical Reasoning**

The ability to reason geometrically, spatially, and logically through the processes of observation, classification, hypothesizing, experimentation, and inductive and deductive thought are critical characteristics of mathematical thinking. MEBA uses the series of interactive **Mathematics Pentathlon®** games and activities to develop this type of reasoning. In addition, MEBA develops arithmetic concepts by connecting them to related spatial and logical ideas.

## **V. Cooperative Learning**

MEBA stresses the shared communication of mathematical ideas, strategies, and relationships. Many lessons are organized for cooperative groupings of two, three, and four students to achieve this objective.

## **VI. Classroom Management and Organization**

MEBA strives to help teachers ask good questions and know when to incorporate them during the instructional process. Guiding teachers to coach students through questioning promotes students' abilities to conceptualize and analyze mathematical principles and relationships.

## **VII. Multiple Assessment Instruments**

MEBA assesses students' conceptual understanding and problem-solving skills through their ability to represent and connect concepts with concrete models, pictures, and symbols and to describe these representations orally and in writing. Portfolios, performance-based assessment tasks, and observational criteria are used on an ongoing basis to evaluate students' progress.