MATHEMATICS
GRADE 1

PURPOSE

Mathematics instruction in grades Kindergarten through grade five is structured upon five overall conceptual goals as defined by the National Council of Teachers of Mathematics (NCTM) in the Curriculum and Evaluation Standards for School Mathematics designed for students to achieve the following:

A. Learning to value mathematics
B. Becoming confident on one's own mathematical ability
C. Becoming a mathematical problem solver
D. Learning to communicate mathematically
E. Learning to reason mathematically

Thinking skills and problem solving strategies, real applications, mental arithmetic, estimation, approximation, measurement with metric units, organizing data, and topics in geometry, probability, and statistics are emphasized at all grade levels. It is to be understood that the content specified at each grade level highlights areas emphasized at that grade level; however, all skills and concepts previously introduced are reviewed, maintained, and extended at subsequent levels.

Throughout the instructional design, students will be actively involved in problem solving, estimating, and computing mentally. They will be given opportunities to explore a variety of mathematical ideas, ask questions, discuss their ideas, and verify their own thinking.

The grade level curriculum is aligned and supports the NJ Core Content Curriculum Standards in the mathematics. Learning content at each grade level focuses on student learning within each standard: Number and Numerical Operations; Geometry and Measurement; Patterns and Algebra; Data Analysis, Probability, and Discrete Mathematics; Mathematical Processes.

I. STUDENT OUTCOMES/Mathematical Processes (4.5)

A. All students will use discovery-oriented, inquiry-based, and problem-centered approaches to investigate and understand mathematics.

B. All students will engage in reasoning and problem solving experiences arising from everyday, experiences and real-world applications. They will receive equitable treatment without regard to gender, ethnicity, or predetermined expectations for success.

C. All students will explore and solve a variety of problems including non-routine, multi-step, story and open-ended problems with a variety of solutions and/or strategies.

D. All students will use concrete, pictorial, symbolic, and graphical models to represent and communicate their mathematical thinking.

E. All students will engage in geometric reasoning as a means of describing their physical world and explore geometry through experiences with measurement problems and everyday situations.

F. All students will choose and apply appropriate mathematical tools, including calculators, computers, and other manipulatives as a natural and routine part of the problem solving process.

G. All students will develop an appreciation of the usefulness of mathematics to enhance career opportunities through interaction with parents and other members of the community, both men and women from a variety of cultural backgrounds, who use mathematics in their daily lives and occupations.

H. All students will see mathematics as integral to the development of all cultures and civilizations.

I. All students will be encouraged to compute mentally and reasonably estimate answers.

J. All students will have the opportunity to pose and solve a variety of problems in both cooperative learning and independent situations.

II. CONTENT

A. All students will develop understanding of place value and numeration as a result of experiences with counting and grouping. (4.1.A)

B. All students will develop proficiency with addition and subtraction facts through 100, sing standard and alternate algorithms. (4.1.B)

C. All students will develop the ability to use a variety of mental computations and estimation techniques. (4.1.B, C)

D. All students will engage in experiences that allow for the investigation of patterns and spatial relationships and geometric properties (4.2.A, 4.3.A)

E. All students will develop the ability to compare values using the relation signs. (4.1.A)

F. All students will explore situations dealing with amounts of money in basic denominations. (4.1. B)

G. All students will identify, compare, and use geometric shapes in various situations. (4.2.A)

H. All students will approximate length, weight, and volume using non-standard units of measure. (4.2.D)

I. All students will be introduced to algebra-relations and functions through experiences with missing addends and subtrahends. (4.3)

J. All students will collect, sort, and begin to analyze data: make simple graphs, charts to tally data. (4.2.D)

K. All students will be introduced to the appropriate use of calculators. (4.5)

III. ACTIVITIES AND MATERIALS

A. Everyday Mathematics Program; SRA McGraw – Hill, 2001

B. Teacher Resources
1. Manipulatives
2. Calculators
3. Puddle Questions. Assessing Mathematical Thinking, Creative Publications, Mountain View, CA, 1994
4. Daily Mathematics, Great Source Education Group, 2000
5. Weekday Workouts, Everyday Math – McGraw-Hill

C. Test Prep - NJ ASK

IV. EVALUATION

A. Students will work independently and cooperatively in groups.
B. Students will be responsible for mathematics materials.
C. Students will be responsibly prepared for math activities.
D. Students will actively participate in math activities.
E. Students will hand in completed class work at the proper time.
F. Students will study for and complete evaluative activities successfully.
G. The final grade represents the teacher's professional judgment of student overall performance. All of the above are included in the evaluative process guided by the teacher's use of performance rubrics.

REVISED:

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