MATH

LENGTH OF TIME: one year

GRADE LEVEL: 2

COURSE STANDARDS:
Students will:
CC.2.1.2.B.1: Use place value concepts to represent amounts of tens and ones and to compare three digit numbers.
CC.2.1.2.B.2: Use place value concepts to read, write, and skip count to 1000.
CC.2.1.2.B.3: Use place value understanding and properties of operations to add and subtract within 1000.
CC.2.2.2.A.1: Represent and solve problems involving addition and subtraction within 100.
CC.2.2.2.A.2: Use mental strategies to add and subtract within 20.
CC.2.2.2.A.3: Work with equal groups of objects to gain foundations for multiplication.
CC.2.3.2.A.1: Analyze and draw two- and three-dimensional shapes having specified attributes.
CC.2.3.2.A.2: Use the understanding of fractions to partition shapes into halves, quarters, and thirds.
CC.2.4.2.A.1: Measure and estimate lengths in standard units using appropriate tools.
CC.2.4.2.A.2: Tell and write time to the nearest five minutes using both analog and digital clocks.
CC.2.4.2.A.3: Solve problems and make change using coins and paper currency with appropriate symbols.
CC.2.4.2.A.4: Represent and interpret data using line plots, picture graphs, and bar graphs.
CC.2.4.2.A.6: Extend the concepts of addition and subtraction to problems involving length.

RELATED PA ACADEMIC STANDARDS FOR MATHEMATICS
CC2.1 Number and operations
CC2.2 Algebraic concepts
CC2.3 Geometry
CC2.4 Measurement, data and probability
PERFORMANCE ASSESSMENTS:
Students will demonstrate achievement of the standards by:
1.   Pre/post grade level tests, RSA in journals, and completing unit tests using pencil, paper, and calculator activities with/without rubrics.
2.   Demonstration of the problem solving process with routine and non-routine problems.
3.   Oral questioning.
4.   Teacher observation of completion of task or activity.
5.   Student assessment portfolio to maintain accurate records of student work.
6.   Free response questions with/without rubrics.
7.   Class and homework assignments.

DESCRIPTION OF COURSE:

This course stresses the fundamentals, application, and appreciation of mathematics. The course focuses on the Pennsylvania Common Core Standards suggested for second grade to include problem solving, communication with the use of math language, reasoning ,estimation, number sense and numeration, whole number concepts and computation, geometry, measurement, fractions, patterns, statistics, and probability. Technology will be integrated throughout the course.

The course will be presented to the students in a manner that appropriately follows the district's differentiated instruction initiative. Instruction will include, but not be limited to: using place value concepts to read, write, skip count, estimate and compare three digit numbers; developing mental strategies to add and subtract within 20; representing and solving problems involving addition and subtraction within 100; developing foundations for multiplication by working with equal groups of objects and creating arrays; applying understanding of fractions to divide shapes; drawing two- and three- dimensional shapes and analyzing specified attributes; using standard tools to measure and estimate lengths in standard units; extending the concepts of addition and subtraction to solve problems involving length; using analog and digital clocks to tell and write time to the nearest five minutes; solving problems and making change using coins and paper currency with appropriate symbols; using line plots, picture graphs, and bar graphs to represent and interpret data.

TITLES OF UNITS/MATH STRANDS:
Spiral program – on-going
1.   Number and Numeration
2.   Measurement
3.   Data and Chance
4.   Patterns, Function, Algebra
5.   Geometry
6.   Operations and Computation

Unit Pacing Completion
Unit 1 – Numbers and Routines – mid September
Unit 2 – Addition and Subtraction Facts – mid October
Unit 3 – Place Value, Money and Time – mid November
Unit 4 – Addition and Subtraction – mid December
Unit 5 – 3-D and 2-D Shapes – mid January
Unit 6 – Whole Number Operations and Number Stories – mid February
Unit 7 – Patterns and Rules – end of February
Unit 8 – Fractions – mid/end March
Unit 9 – Measurement – beginning of April
Unit 10 – Decimals and Place Value – end of April
Unit 11 – Whole Number Operations Revisited – mid/end May
Unit 12 – Year End Reviews and Extensions – end of year

SAMPLE INSTRUCTIONAL STRATEGIES:
1.   Teacher/student made activities
2.   Teacher/student led discussions and activities
3.   Problem solving strategies

4. Calculators and internet
5. Individual and group explorations and investigations
6. Games and manipulatives
7. Written explanations and journal activities
8. Teacher/peer modeling

MATERIALS:
1. <u>Everyday Mathematics Common Core Edition: The University of Chicago School Mathematics Project</u>, Everyday Learning Corporation, 2012, Chicago, Illinois.
2. Calculators, TI-108
3. Materials suggested by Everyday Math (Everyday Math games)
4. Everyday Math online resource
5. Standard-related games and manipulatives
6. Base 10 blocks
7. Number lines and number grids
8. Counters
9. Everyday Math templates
10. Student reference books
11. Various children literature books

METHODS OF ASSISTANCE AND ENRICHMENT:
A. Assistance
   1. IST
   2. Cooperative groups
   3. Peer helpers
   4. Flexible/modified grouping
   5. Re-teaching with alternative strategies
   6. Extended instructional time
   7. Differentiated grouping – based on recommendations in Differentation Handbook
   8. Modified testing
   9. Teacher assessment – Everyday Math Online

B. Enrichment
1. Enhanced curriculum
2. Peer tutoring
3. Modified testing
4. Math journal and/or projects
5. Individual mathematical investigations
6. IST
7. PAL
8. Differentiated lessons, paper and pencil tests and activities, games suggested in Differentiation Handbook
9. Teacher Assessment – Everyday Math Online

METHODS OF EVALUATION:

1.   Recognizing student achievement checklists
2.   Written unit assessment – Everyday Math
3.   Math journals
4.   Problem solving activities – open-ended response provided by Everyday Math

INTEGRATED ACTIVITIES:
1.   Concepts
        -demonstrate knowledge of the basic concepts and principles for the above
         mentioned standards

2.   Communication
          -written entries in math journal using appropriate mathematical terms and
   vocabulary
        -explains solutions and strategies clearly and logically with supporting evidence

3.   Thinking/Problem Solving
        -apply the concepts of the above mentioned standards to formulate and solve
         problems
        -make critical judgments using the learned skills
        -draw conclusions and show relationships in mathematical settings
        -make decisions and predictions based upon the application of learned skills

4.   Application of Knowledge
        -use learned skills to solve authentic problems
        -exhibit skills with calculators and internet and application programs
        -examine, evaluate, and solve routine and non-routine problems

5.   Interpersonal Skills
        -work cooperatively with others on projects and investigations
        -work effectively with others on projects and investigations
        -communicate effectively using appropriate mathematical language