

## MATHEMATIC Second Grade

<b>VALUES AND ATTITUDES</b>	<p>The student will:</p> <ul style="list-style-type: none"><li>Understand that there is a definite sense of order in God's world.</li><li>Understand numbers, ways of representing numbers, relationships among numbers, and number systems.</li><li>Understand that God's universe is composed of appropriate spacing, measurement and geometric designs.</li><li>Use visualization, spatial reasoning, and geometric modeling.</li><li>Understand patterns, relations, and functions.</li><li>Use varied methods for analyzing data.</li><li>Use the ability of our minds to reason.</li><li>Develop mathematical knowledge through problem solving.</li></ul>
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### DIOCESAN STRAND A Number Sense, Numeration, and Numerical Operations

<b>OBJECTIVES</b>
<p>Read, write, and model numbers through 1000</p> <ul style="list-style-type: none"><li>• Rote count to 1000.</li><li>• Use 10 more and 10 less.</li><li>• Compare and order numbers.</li><li>• Identify missing numbers in a sequence to 1000.</li><li>• Indicate the value of each digit in 2 and 3-digit numbers.</li><li>• Use problem-solving strategies, e.g. diagrams, manipulatives, etc.</li><li>• Explain solutions to problems.</li><li>• Use inverse relationship of addition and subtraction to compute and check results.</li><li>• Read word names for numbers to 100.</li><li>• Order a set of numbers, 0-99, from smallest to largest.</li></ul> <p>Addition and subtraction of two and three digit numbers</p> <ul style="list-style-type: none"><li>• Identify missing addends for addition facts to 18.</li><li>• Add 3 single-digit numbers.</li><li>• Model 2-digit addition and subtraction using manipulatives and alternative strategies.</li><li>• Memorize addition/subtraction facts up to 18.</li><li>• Add 2- and 3- digit numbers with and without regrouping.</li><li>• Use addition/subtraction strategies to solve problems.</li><li>• Retell and illustrate story problems using addition and subtraction.</li><li>• Identify the whole number immediately before/after any two digit number.</li><li>• Indicate the number for one more or one less.</li><li>• Count by 2's, 5's, and 10's and grouping objects by 3's and 4's.</li><li>• Identify odd and even numbers.</li><li>• Group objects into ones, tens, and hundreds.</li><li>• Compare sets to determine if they have the same number of objects.</li><li>• Identify, read, and write correct numerals for 3 digit numbers.</li></ul>

- Use expanded notation to standard form and standard form to expanded form for 2 and 3 digit numbers.

Multiplication and division

- Model multiplication.
- Model division.
- Memorize multiplication tables of 2s, 3s, 4s, 5s, and 10s, to times 10. Include 0s and 1s general rules.

Fractions and decimals

- Divide sets into halves, thirds, and fourths. Record in fractional form.
- Recognize fractions of a whole, e.g.,  $\frac{1}{4}$  of a pie.
- Recognize, name and compare unit fractions from  $\frac{1}{12}$  to  $\frac{1}{2}$ .

Money problems

- Solve problems using combinations of bills and coins.
- Use decimal notation and dollar and cent symbols for money.
- Identify/compare/contrast monetary values of dollar as whole and quarters, nickels and pennies as parts of the whole.

Estimation strategies using ones, tens, hundreds and thousands

- Estimates up to 100 objects.
- Recognize reasonable estimates of measurement, e.g., closest inch.
- Estimate/use non-standard units to measure area.
- Estimate volume using cups and pints.

**STRAND B Spatial Sense, Measurement, and Geometry**

**OBJECTIVES**

Basic geometric properties

- Describe and make cubes, rectangular prisms, spheres, cylinders, cones, and pyramids.
- Copy a shape when given a simple pattern.
- Identify and make figures with line symmetry.
- Create two- and three-dimensional shapes.
- Identify and make congruent figures.
- Use spatial visualization to solve problems.
- Describe and make plane figures: squares, rectangles, triangles, circles, hexagons, trapezoids, parallelograms and diamonds.
- Describe and classify plane and solid geometric shapes, e.g., circle, triangle, square, rectangle, sphere, pyramid, cube, rectangular prism.

Standard units of metric and customary measurement

- Measure lengths in inches/centimeters.
- Compare/contrast inch, foot, yard, and mile.
- Compare/contrast millimeter, centimeter, meter.

- Measure capacity to the nearest cup/liter.
- Compare and contrast gram/kilogram; milliliter, liter.
- Weigh objects to the nearest pound/kilogram; record results; estimate weight using nonstandard instruments.
- Read Fahrenheit thermometers in increments of 1's, 2's, and 5's.
- Sequence months.
- Use the calendar to solve problems.
- Tell time to the nearest quarter-hour using digital and analog clocks; record.
- Solve problems related to time.
- Tell time to the nearest quarter hour and know relationship of time, e.g., minutes in an hour, hours in a day, etc.
- Determine the value of sets of coins: pennies, nickels, dimes, and quarters.
- Use appropriate notation for the value of coins.
- Make multiple sets of coins with equivalent values.
- Identify coins needed to buy items priced at or less than \$1.00.
- Estimate costs and make change using coins up to \$1.00.

### **STRAND C Patterns, Algebra, and Functions**

#### **OBJECTIVES**

##### Classification, patterning, and seriation

- Sort by one or more attributes.
- Identify classification and patterning in the environment.
- Define, continue, and describe rules for geometric patterns.
- Use patterns to continue numerical sequences.
- Identify the rule for patterns in numerical sequences.
- Correct errors in numerical and geometric patterns.
- Solve simple logic problems.
- Use addition and subtraction to complete a number pattern.
- Plot points on a number line.
- Identify rhythmic patterns in music and show relationship to patterns in mathematics.

##### Number relationships

- Use commutative and associative rules to simplify mental calculations and to check results.
- Relate problem situations to number sentences involving addition and subtraction.
- Solve addition and subtraction problems by using data from simple charts, picture graphs, and number sentences.

**STRAND D Data, Probability, and Statistics**

**OBJECTIVES**

Data collection

- Collect, sort, organize, correctly label and display information in charts, graphs, and tables.
- Identify features of a data set: range and mode.
- Summarize and interpret information in charts, graphs, and tables.
- Make predictions from collected data.
- Collect and display data over a period of time.
- Locate points on the number line and positions on a grid.
- Complete simple probability experiments.
- Describe results of simple probability experiments and make predictions.
- Write a story problem using information gathered from data.

Patterns

- Describe and extend patterns, e.g., 3, 6, 9,....
- Solve problems involving simple number patterns.

**STRAND E Mathematical Reasoning**

**OBJECTIVES**

Setting up problems

- Determine the approach, materials and strategies to be used.
- Use tools to model problems, i.e. manipulatives or pictures.
- Use mathematical applications in social studies using graphs, tables, and map skills.

Problem solving and justification

- Defend the reasoning used and justify the procedures selected in mathematical language and symbols.
- Make precise calculations and check the validity of the results in the context of the problem.