



St. Mel's Catholic School

MATHEMATICS STANDARDS

Grade Four

Number Sense

1.0 Place Value

- 1.1 Read and write whole numbers to millions.
- 1.2 Order and compare whole numbers and decimals to two decimal places.
- 1.3 Round whole numbers through the millions.
- 1.4 Decide/explain when a rounded solution is appropriate.
- 1.5 Explain different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers).
- 1.6 Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or $.50$; $7/4 = 1 \frac{3}{4} = 1.75$).
- 1.7 Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.
- 1.8 Use concepts of negative numbers.
- 1.9 Identify, on a number line, the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.

2.0 Computation - Decimals

- 2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.
- 2.2 Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.

3.0 Computation - Whole Numbers

- 3.1 Solve addition and subtraction problems with multi-digit numbers.
- 3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi-digit number by a two-digit number and for dividing a multi-digit number by a one-digit number; use relationships between them to simplify computations and to check results.
- 3.3 Solve problems involving multiplication of multi-digit numbers by two-digit numbers.
- 3.4 Solve problems involving division of multi-digit numbers by one-digit numbers.

4.0 Factoring

- 4.1 Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$).
- 4.2 Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.

Algebra and Functions

1.0 Number Sentences



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1.1 Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrating an understanding and the use of the concept of a variable).

1.2 Interpret and evaluate mathematical expressions that now use parentheses.

1.3 Use parentheses to indicate which operation to perform first when writing expressions

containing more than two terms and different operations.

1.4 Use and interpret formulas (e.g., $\text{area} = \text{length} \times \text{width}$ or $A = lw$) to answer questions

about quantities and their relationships.

1.5 Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given.

2.0 Manipulate Equations

2.1 Know equals added to equals are equal.

2.2 Know equals multiplied by equals are equal.

Measurement and Geometry

1.0 Area and Perimeter

1.1 Measure the area of rectangular shapes by using appropriate units, such as square centimeter (cm^2), square meter (m^2), square inch (in^2), square yard (yd^2), or square mile (mi^2).

1.2 Recognize that rectangles that have the same area can have different perimeters.

1.3 Understand that rectangles that have the same perimeter can have different areas.

1.4 Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes.

2.0 Coordinate Grids

2.1 Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation $y = 3x$ and connect them by using a straight line).

2.2 Understand that the length of a horizontal line segment equals the difference of the x coordinates.

2.3 Understand that the length of a vertical line segment equals the difference of the y-coordinates.

3.0 Geometry

3.1 Identify lines that are parallel and perpendicular.

3.2 Identify the radius and diameter of a circle.

3.3 Identify congruent figures.

3.4 Identify figures that have bilateral and rotational symmetry.

3.5 Know the definitions of a right angle, an acute angle, and an obtuse angle.

Understand that 90° , 180° , 270° , and 360° are associated, respectively, with $1/4$, $1/2$, $3/4$, and full turns.

3.6 Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in



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terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.

3.7 Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.

3.8 Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).

Statistics, Data Analysis, and Probability

1.0 Data Analysis

1.1 Formulate survey questions; systematically collecting and representing data on a number line; and coordinating graphs, tables, and charts.

1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.

1.3 Interpret one- and two-variable data graphs to answer questions about a situation.

2.0 Making Predictions

2.1 Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).

2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; $3/4$).

Mathematical Reasoning

1.0 Make Decisions about a Problem

1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

1.2 Determine when and how to break a problem into simpler parts.

2.0 Solve Problems and Justify Reasoning

2.1 Use estimation to verify the reasonableness of calculated results.

2.2 Apply strategies and results from simpler problems to more complex problems.

2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; supporting solutions with evidence in both verbal and symbolic work.

2.5 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

2.6 Make precise calculations and check the validity of the results from the context of the problem.

3.0 Make Generalizations

3.1 Evaluate the reasonableness of the solution in the context of the original situation.

3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.



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3.3 Develop generalizations of the results obtained and applying them in other circumstances.