

# 4th Grade Mathematics

Goal	ISAT%	Objective Description (with content limits)	New Vocabulary Words
<b>Standard 1: Number and Operation</b>			
1.1: Understand and use numbers	38-40%	4.M.1.1.1 Read, write, compare, and order whole numbers to 100,000. (297.01.a)  CL: B Calc: NO Content Limit: When comparing, symbols for greater than and less than will not be used. When ordering, no more than four values are used. Numbers may be ordered least to greatest or greatest to least.	cent decimal denominator digit divide dividend divisor eighth evaluate expanded form fifth hundred thousand million numerator quotient regroup (borrow, carry) rounding sequence
1.1: Understand and use numbers		4.M.1.1.2 Identify and apply place value in whole numbers. (297.01.b)  CL: B Calc: NO Content Limit: Whole numbers to 100,000.	
1.1: Understand and use numbers		4.M.1.1.3 Count the value of a collection of bills and coins up to \$100.00. (297.01.c)  CL: C Calc: NO Content Limit: Any quantity of coins or bills whose sum is under \$100. Pictures of bills and coins are not required.	
1.1: Understand and use numbers		4.M.1.1.4 Read, write, compare, and order commonly used fractions with pictorial representations. (297.01.d)  CL: D Calc: NO Content Limit: Fraction denominators limited to 2, 3, 4, 5, 6, and 8. Fractions not simplified. Improper fractions not allowed as correct answer.	
1.1: Understand and use numbers		4.M.1.1.5 Use decimal numbers with money. (297.01.e)  CL: B Calc: NO Content Limit: Items will state an amount of money less than \$100 in words and ask to find the appropriate expression or value written with dollar sign (\$) and decimal point.	
1.2: Perform computations accurately		4.M.1.2.2 Add and subtract whole numbers. (297.02.a)  CL: C Calc: NO Content Limit: At most, three addends. Each number contains at most, three digits. Differences must be greater than zero. May be done with or without regrouping. Expression must be clearly stated. Items may be written in horizontal or vertical form.	

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1.2: Perform computations accurately		<p>4.M.1.2.3 Multiply up to two-digit by two-digit whole numbers and divide whole numbers by one-digit divisors. (297.02.b)</p> <p>CL: C Calc: NO Content Limit: Divide up to three-digit whole numbers by one-digit divisors. Division must result in a whole number quotient. Division problems may be written with bracket or division symbol (<math>\div</math>). Expression must be clearly stated. Items may be written in horizontal or vertical form.</p>	
1.2: Perform computations accurately		<p>4.M.1.2.4 Add and subtract fractions with like denominators that do not require simplification. (297.02.c)</p> <p>CL: C Calc: NO Content Limit: Fraction denominators limited to 2, 3, 4, 6, 8, 10, and 12. Improper fractions allowed in answer options. Expression must be clearly stated. Items may be written in horizontal or vertical form.</p>	
1.2: Perform computations accurately		<p>4.M.1.2.5 Add and subtract decimals using money. (297.02.d)</p> <p>CL: C Calc: NO Content Limit: May be done with or without regrouping. Values for answer options up to \$10.00. All values written with dollar sign (\$) and decimal point. Expression must be clearly stated. Items may be written in horizontal or vertical form.</p>	
1.2: Perform computations accurately		<p>4.M.1.2.7 Select and use appropriate operations to solve word problems and show or explain work. (298.01.b)</p> <p>CL: D Calc: NO Content Limit: Content limits for objectives 1.2.2, 1.2.3, 1.2.4, and 1.2.5 apply. Expression should not be stated. 'Show or explain the work' assessed in the classroom, not on the ISAT.</p>	
<b>Standard 2: Measurement</b>			
2.1: Understand and use customary and metric measurements	18-20%	<p>4.M.2.1.1 Select and use appropriate units and tools to make the formal measurements of length, temperature, and weight in both systems. (299.01.a)</p> <p>CL: C Calc: NO Content Limit: Select appropriate units and tools only. Units are degrees, inches, feet, yards, miles, millimeters, centimeters, meters, ounces, pounds, tons, grams, kilograms, and degrees. Tools are rulers, yardsticks, meter sticks, thermometers, clocks, and scales. 'Use ... tools to make formal measurements' to be assessed in the classroom, not on the ISAT.</p>	<p>convert elapsed time equivalence gram kilogram millimeter per width</p>

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2.1: Understand and use customary and metric measurements		<p>4.M.2.1.2 Estimate length, time, weight, and temperature in real-world problems using standard units. (299.01.b)</p> <p>CL: C Calc: NO Content Limit: Lengths are measured in inches, feet, and yards. Time is measured in minutes, hours, and days. Weight is measured in ounces, pounds, and tons. Capacity is measured in cups, quarts, and gallons. May select estimate of size from among list of different numbers with same units (e.g., 1 inch, 1 foot, 10 inches, 10 feet).</p>	
2.1: Understand and use customary and metric measurements		<p>4.M.2.1.3 Tell time to the nearest minute using digital and analog clocks. (299.01.e)</p> <p>CL: B Calc: NO Content Limit: Second hand not shown on clock face. Picture of analog clock is given and answer options show time on digital clock OR digital clock is shown and answer options are analog clocks.</p>	
2.1: Understand and use customary and metric measurements		<p>4.M.2.1.4 Solve real-world problems related to elapsed time. (299.01.f)</p> <p>CL: F Calc: NO Content Limit: Times given in hours and minutes.</p>	
2.1: Understand and use customary and metric measurements		<p>4.M.2.1.5 Convert units of length and time within the U. S. Customary system. (299.01.c)</p> <p>CL: C Calc: NO Content Limit: Units of length are inches, feet, and yards. Units of time are seconds, minutes, hours, and days. Conversion may only bridge two adjacent units such as hours to minutes and not hours to seconds. Conversions may not include or result in fractions.</p>	
2.1: Understand and use customary and metric measurements		<p>4.M.2.1.7 Recall length and volume (capacity) equivalences involving inches, feet, yards, cups, pints, quarts, and gallons in the U.S. Customary system.</p> <p>CL: B Calc: CR Content Limit: Equivalences include 12 inches = 1 foot, 3 feet = 1 yard, 2 cups = 1 pint, 2 pints = 1 quart, and 4 quarts = 1 gallon. No conversions.</p>	
<b>Standard 3: Algebra &amp; Functions</b>			

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3.1: Use algebraic symbolism as a tool to represent mathematical relationships	15-18%	4.M.3.1.1 Write a division problem using a bracket ( $\overline{\quad}$ ) and/or the division symbol ( $\div$ ). (300.01.a)  CL: B Calc: NO Content Limit: Whole numbers less than 100,000. Student is not required to find the quotient.	division formula function identity property zero property
3.1: Use algebraic symbolism as a tool to represent mathematical relationships		4.M.3.1.2 Write a number sentence using simple geometric shapes or letters of the alphabet as symbols to represent an unknown number. (300.01.b)  CL: C Calc: NO Content Limit: Information given in words to be rewritten as a number sentence that includes a symbol. Number sentence includes no more than one operation. Geometric symbols used limited to squares, rectangles and triangles.	
3.1: Use algebraic symbolism as a tool to represent mathematical relationships		4.M.3.1.3 Show the relationship between multiplication and division using fact families.  CL: D Calc: NO Content Limit: Whole number factors between 1 and 10, inclusive.	
3.1: Use algebraic symbolism as a tool to represent mathematical relationships		4.M.3.1.4 Read and use symbols of " $<$ ," " $>$ ," and " $=$ " to express relationships with numbers through 1,000,000. (300.01.c)  CL: C Calc: CN Content Limit: May compare results of expressions. Use whole numbers and expressions with no more than one operation. 'Read' means to express in words.	
3.2: Evaluate algebraic expressions		4.M.3.2.1 Use the identity and zero properties of multiplication.  CL: C Calc: NO Content Limit: Item can be assessed using a numeric representation ( $4 \times 0$ or $4 \times 1$ ) or a description in words such as "Any number times zero ..." a) Equals itself b) Equals zero c) Does not exist d) Equals the number with a zero added on...,etc. Factors limited to 0 through 9.	
3.3: Solve algebraic equations and inequalities	4.M.3.3.1 Solve missing factor equations. (300.03.a)  CL: C Calc: NO Content Limit: Whole number factors with products less than 100. Geometric symbols used to represent missing factor limited to squares, rectangles, or triangles.		

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Goal	ISAT%	Objective Description (with content limits)	New Vocabulary Words
3.4: Understand the concept of functions		4.M.3.4.1 Identify the rule (function) for a pattern using whole numbers and addition and then extend the pattern. (303.01.a)  CL: F Calc: NO Content Limit: Numbers less than 100. Items can ask for a rule, an extension of the pattern, or both. Minimum of four terms of pattern must be given.	
<b>Standard 4: Geometry</b>			
4.1: Apply concepts of size, shape, and spatial relationships	15-18%	4.M.4.1.1 Identify, compare, and analyze attributes of two- and three- dimensional shapes, including parallel, intersecting, and perpendicular lines, and develop vocabulary to describe the attributes. (301.01.a)  CL: B, C, D Calc: NO Content Limit: Identify and compare only. Two-dimensional shapes limited to triangles, quadrilaterals (rectangle, square, rhombus, and trapezoid), and hexagons. Three-dimensional shapes limited to cubes, cylinders, cones, spheres, pyramids, and rectangular prisms.  'Analyze attributes ... and develop vocabulary to describe the attributes' to be assessed in the classroom, not on the ISAT.	area coordinate grid face first quadrant intersecting ordered pair parallel perimeter perpendicular polygon prism quadrilateral three dimensional shape two dimensional shape
4.1: Apply concepts of size, shape, and spatial relationships		4.M.4.1.2 Predict the results of sliding and flipping two-dimensional shapes. (301.01.d)  CL: D Calc: NO Content Limit: Use diagrams showing non-regular polygons on a grid. Include items where student is given a description and there is a graphic shown for each answer option.	
4.1: Apply concepts of size, shape, and spatial relationships		4.M.4.1.3 Identify multiple lines of symmetry in two-dimensional shapes.  CL: B, C Calc: NO Content Limit: Shapes limited to parallelogram, hexagon, and octagon.	
4.3: Apply graphing in two dimensions		4.M.4.3.1 Use ordered pairs to identify the position of a point in the first quadrant on a coordinate grid.  CL: C Calc: NO Content Limit: Coordinates are whole numbers. Point may not be on x-axis or y-axis.	
<b>Standard 5: Data Analysis, Probability, &amp; Stats</b>			

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Goal	ISAT%	Objective Description (with content limits)	New Vocabulary Words
5.1: Understand data analysis	15-18%	4.M.5.1.1 Read and interpret simple tables, charts, bar graphs, and line graphs. (302.01.a)  CL: D Calc: NO Content Limit: Graphics may have at most ten data categories. Scales are in increments of 1, 2, 5, or, 10 or must be consistent with real-world applications. Bar graphs may be vertical or horizontal. Pictograph may be used as a type of bar graph.	axes labels axes scales circle graph (pie chart) experiment label line graph mode probability title
5.2: Collect, organize, and display data		4.M.5.2.1 Collect, organize, and display data in tables and charts to answer a question. (302.02.a)  CL: C Calc: NO Content Limit: Given data, choose a display. Graphics may have at most ten data categories. Scales are in increments of 1, 2, 5, or 10, or must be consistent with real-world applications. Bar graphs may be vertical or horizontal. Pictograph may be used as a type of bar graph. Line graphs, vertical bar graphs, and horizontal bar graphs may be used. 'Collect' data to be assessed in the classroom, not on the ISAT.	
5.3: Apply simple statistical measurements		4.M.5.3.1 Find the mode of a simple set of whole number data.  CL: C Calc: NO Content Limit: Numbers used for data are less than 100. Data set must contain unique mode. Limited to ten values in data set.	
5.4: Understand basic concepts of probability		4.M.5.4.1 Predict the results of simple probability experiments using coins or spinners (e.g., 3 out of 6 choices). (302.04.a)  CL: E Calc: NO Content Limit: Situation may involve at most two coins or spinners divided in up to six equal sections.	
5.5: Make predictions or decisions based on data		4.M.5.5.1 Make predictions based on data. (298.01.c)  CL: E Calc: NO Content Limit: Data given in tables, bar graphs, or line graphs.	

Cognitive level codes:

- B: Memorize
- C: Perform procedures
- D: Demonstrate understanding
- E: Conjecture, generalize, prove
- F: Solve non-routine problems, make connections