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Snapshot – Kindergarten Math

Mathematical Process Standards

K.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know

K.1(A) apply mathematics to problems arising in everyday life, society, and the workplace
K.1(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
K.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

Representation and Comparison of Whole Numbers

Connected Knowledge and Skills K.5

K.2 Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system.

Readiness Standards

K.2(B)* read, write, and represent whole numbers from 0 to at least 20 with and without objects or pictures
K.2(H)* use comparative language to describe two numbers up to 20 presented as written numerals
K.2(I) compose and decompose numbers up to 10 with objects and pictures

Supporting Standards

K.2(A) count forward and backward to at least 20 with and without objects
K.2(C) count a set of objects up to at least 20 and demonstrate that the last number said tells the number of objects in the set regardless of their arrangement or order
K.2(D) recognize instantly the quantity of a small group of objects in organized and random arrangements
K.2(E) generate a set using concrete and pictorial models that represents a number that is more than, less than, and equal to a given number up to 20
K.2(F) generate a number that is one more than or one less than another number up to at least 20
K.2(G) compare sets of objects up to at least 20 in each set using comparative language
K.5(A) recite numbers up to at least 100 by ones and tens beginning with any given number

Addition and Subtraction of Whole Numbers

K.3 Number and operations. The student applies mathematical process standards to develop an understanding of addition and subtraction situations in order to solve problems.

K.3(B)* solve word problems using objects and drawings to find sums up to 10 and differences within 10

K.3(A)* model the action of joining to represent addition and the action of separating to represent subtraction
K.3(C)* explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences

Geometry

K.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.

K.6(E)* classify and sort a variety of regular and irregular two- and three-dimensional figures regardless of orientation or size

K.6(A) identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles
K.6(B)* identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world
K.6(C) identify two-dimensional components of three-dimensional objects
K.6(D) identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably
K.6(F) create two-dimensional shapes using a variety of materials and drawings

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Snapshot – Kindergarten Math

Measurement

K.7 Geometry and measurement. The student applies mathematical process standards to directly compare measurable attributes.

Readiness Standards		Supporting Standards	
K.7(B)	compare two objects with a common measurable attribute to see which object has more of/less of the attribute and describe the difference	K.7(A)	give an example of a measurable attribute of a given object, including length, capacity, and weight

Data Analysis

K.8 Data analysis. The student applies mathematical process standards to organize data to make it useful for interpreting information.

K.8(B)*	use data to create real-object and picture graphs	K.8(A)	collect, sort, and organize data into two or three categories
K.8(C)*	draw conclusions from real-object and picture graphs		

Personal Financial Literacy

K.4 Number and operations. The student applies mathematical process standards to identify coins in order to recognize the need for monetary transactions.
K.9 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.

		K.4(A)	identify U.S. coins by name, including pennies, nickels, dimes, and quarters
		K.9(A)	identify ways to earn income
		K.9(B)	differentiate between money received as income and money received as gifts
		K.9(C)	list simple skills required for jobs
		K.9(D)	distinguish between wants and needs and identify income as a source to meet one's wants and needs

Mathematical Process Standards

K.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Ways to Show	
K.1(D)	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
K.1(E)	create and use representations to organize, record, and communicate mathematical ideas
K.1(F)	analyze mathematical relationships to connect and communicate mathematical ideas
K.1(G)	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

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Snapshot – Grade 1 Math

Mathematical Process Standards

1.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know

1.1(A) apply mathematics to problems arising in everyday life, society, and the workplace
1.1(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
1.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

Representation and Comparison of Whole Numbers

Connected Knowledge and Skills 1.5

1.2 Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value.

Readiness Standards

1.2(C)* use objects, pictures, and expanded and standard forms to represent numbers up to 120
1.2(G)* represent the comparison of two numbers to 100 using the symbols >, <, or =

Supporting Standards

1.2(A) recognize instantly the quantity of structured arrangements
1.2(B)* use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones
1.2(D) generate a number that is greater than or less than a given whole number up to 120
1.2(E) use place value to compare whole numbers up to 120 using comparative language
1.2(F) order whole numbers up to 120 using place value and open number lines
1.5(A) recite numbers forward and backward from any given number between 1 and 120
1.5(C) use relationships to determine the number that is 10 more and 10 less than a given number up to 120

Addition and Subtraction of Whole Numbers

1.3 Number and operations. The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems.
1.5 Algebraic reasoning. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships.

1.3(F)* generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20
1.5(D) represent word problems involving addition and subtraction of whole numbers up to 20 using concrete and pictorial models and number sentences
1.5(G)* apply properties of operations to add and subtract two or three numbers

1.3(A) use concrete and pictorial models to determine the sum of a multiple of ten and a one-digit number in problems up to 99
1.3(B) use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as $2 + 4 = ___$; $3 + ___ = 7$; and $5 = ____ - 3$
1.3(C) compose 10 with two or more addends with and without concrete objects
1.3(D) apply basic fact strategies to add and subtract within 20, including making 10 and decomposing a number leading to a 10
1.3(E) explain strategies used to solve addition and subtraction problems up to 20 using spoken words, objects, pictorial models, and number sentences
1.5(B)* skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set
1.5(E) understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s)
1.5(F) determine the unknown whole number in an addition or subtraction equation when the unknown may be any one of the three or four terms in the equation

Fractions

1.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.

1.6(G) partition two-dimensional figures into two and four fair shares or equal parts and describe the parts using words
1.6(H) identify examples and non-examples of halves and fourths

Geometry

1.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.

Readiness Standards	Supporting Standards
1.6(A)* classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language	1.6(B) distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape
1.6(D) identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons, and describe their attributes using formal geometric language	1.6(C) create two-dimensional figures, including circles, triangles, rectangles, and squares as special rectangles, rhombuses, and hexagons
1.6(E)* identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language	1.6(F) compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible

Measurement

1.7 Geometry and measurement. The student applies mathematical process standards to select and use units to describe length and time.

1.7(D)* describe a length to the nearest whole unit using a number and a unit	1.7(A) use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement
1.7(E)* tell time to the hour and half hour using analog and digital clocks	1.7(B) illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other
	1.7(C) measure the same object/distance with units of two different lengths and describe how and why the measurements differ

Data Analysis

1.8 Data analysis. The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems.

1.8(C)* draw conclusions and generate and answer questions using information from picture and bar-type graphs	1.8(A)* collect, sort, and organize data in up to three categories using models/representations such as tally marks or T-charts
	1.8(B) use data to create picture and bar-type graphs

Personal Financial Literacy

1.4 Number and operations. The student applies mathematical process standards to identify coins, their values, and the relationships among them in order to recognize the need for monetary transactions.
1.9 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.

1.4(C)* use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes	1.4(A)* identify U.S. coins including pennies, nickels, dimes, and quarters by value and describe the relationships between them
	1.4(B) write a number with the cent symbol to describe the value of a coin
	1.9(A) define money earned as income
	1.9(B) identify income as a means of obtaining goods and services, oftentimes making choices between wants and needs
	1.9(C) distinguish between spending and saving
	1.9(D) consider charitable giving

Mathematical Process Standards

1.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Ways to Show

1.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
1.1(E) create and use representations to organize, record, and communicate mathematical ideas
1.1(F) analyze mathematical relationships to connect and communicate mathematical ideas
1.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

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Snapshot – Grade 2 Math

Mathematical Process Standards

2.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know

2.1(A) apply mathematics to problems arising in everyday life, society, and the workplace
2.1(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
2.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

Representation and Comparison of Whole Numbers

Connected Knowledge and Skills 2.7

2.2 Number and operations. The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value.

Readiness Standards

2.2(B)* use standard, word, and expanded forms to represent numbers up to 1,200
2.2(D)* use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols (>, <, or =)

Supporting Standards

2.2(A)* use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones
2.2(C) generate a number that is greater than or less than a given whole number up to 1,200
2.2(E)* locate the position of a given whole number on an open number line
2.2(F)* name the whole number that corresponds to a specific point on a number line
2.7(B) use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200

Fractions

2.3 Number and operations. The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole.

2.3(B)* explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part

2.3(A) partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words
2.3(C)* use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole
2.3(D) identify examples and non-examples of halves, fourths, and eighths

Whole Number Operations

2.4 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy.
2.5 Number and operations. The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions.
2.6 Number and operations. The student applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares.
2.7 Algebraic reasoning. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships.

2.4(C)* solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms
2.4(D)* generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000
2.5(A) determine the value of a collection of coins up to one dollar

2.4(A) recall basic facts to add and subtract within 20 with automaticity
2.4(B)* add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations
2.5(B) use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coin
2.6(A)* model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined
2.6(B)* model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets
2.7(A)* determine whether a number up to 40 is even or odd using pairings of objects to represent the number
2.7(C) represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem

Geometry

2.8 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.

Readiness Standards	Supporting Standards
2.8(B)* classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language 2.8(C)* classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices	2.8(A) create two-dimensional shapes based on given attributes, including number of sides and vertices 2.8(D) compose two-dimensional shapes and three-dimensional solids with given properties or attributes 2.8(E) decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts

Measurement

2.9 Geometry and measurement. The student applies mathematical process standards to select and use units to describe length, area, and time.

2.9(E)* determine a solution to a problem involving length, including estimating lengths 2.9(G)* read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.	2.9(A)* find the length of objects using concrete models for standard units of length 2.9(B) describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object 2.9(C)* represent whole numbers as distances from any given location on a number line 2.9(D) determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes 2.9(F)* use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit

Data Analysis

2.10 Data analysis. The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems.

2.10(C)* write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one	2.10(A) explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category 2.10(B)* organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more 2.10(D)* draw conclusions and make predictions from information in a graph

Personal Financial Literacy

2.11 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.

	2.11(A) calculate how money saved can accumulate into a larger amount over time 2.11(B) explain that saving is an alternative to spending 2.11(C) distinguish between a deposit and a withdrawal 2.11(D) identify examples of borrowing and distinguish between responsible and irresponsible borrowing 2.11(E) identify examples of lending and use concepts of benefits and costs to evaluate lending decisions 2.11(F) differentiate between producers and consumers and calculate the cost to produce a simple item

Mathematical Process Standards

2.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Ways to Show

2.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
2.1(E) create and use representations to organize, record, and communicate mathematical ideas
2.1(F) analyze mathematical relationships to connect and communicate mathematical ideas
2.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

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Snapshot – Grade 3 Math

Mathematical Process Standards

3.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know

3.1(A) apply mathematics to problems arising in everyday life, society, and the workplace
3.1(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
3.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

Representation and Comparison of Whole Numbers

3.2 Number and operations. The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value.

STAAR	Readiness Standards	Supporting Standards
3-4 items	3.2(A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate 3.2(D) compare and order whole numbers up to 100,000 and represent comparisons using the symbols >, <, or =	3.2(B) describe the mathematical relationships found in the base-10 place value system through the hundred thousands place 3.2(C) represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers

Fractions

Connected Knowledge and Skills 3.6, 3.7

3.3 Number and operations. The student applies mathematical process standards to represent and explain fractional units.

3-6 items	3.3(F) represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines 3.3(H) compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models	3.3(A) represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines 3.3(B) determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line 3.3(C) explain that the unit fraction $1/b$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number 3.3(D) compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts $1/b$ 3.3(E) solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8 3.3(G) explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model 3.6(E) decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape 3.7(A) represent fractions of halves, fourths, and eighths as distances from zero on a number line

Addition and Subtraction of Whole Numbers

3.4 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy.
3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships.

STAAR	Readiness Standards	Supporting Standards
4-5 items	3.4(A) solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction 3.5(A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations 3.5(E) represent real-world relationships using number pairs in a table and verbal descriptions	3.4(B) round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems 3.4(C) determine the value of a collection of coins and bills

Multiplication and Division of Whole Numbers

Connected Knowledge and Skills 3.6

3.4 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy.
3.5 Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships.

9-11 items	3.4(K) solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts 3.5(B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations 3.5(E) represent real-world relationships using number pairs in a table and verbal descriptions 3.6(C) determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row	3.4(D) determine the total number of objects when equally sized groups of objects are combined or arranged in arrays up to 10 by 10 3.4(E) represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting 3.4(F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts 3.4(G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties 3.4(H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally 3.4(I) determine if a number is even or odd using divisibility rules 3.4(J) determine a quotient using the relationship between multiplication and division 3.5(C) describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24 3.5(D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product

Geometry

3.6 Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties.

2-3 items	3.6(A) classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language	3.6(B) use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories

Measurement

Connected Knowledge and Skills 3.6

3.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement.

STAAR	Readiness Standards	Supporting Standards
4-5 items	3.6(C) determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row 3.7(B) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems	3.6(D) decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area 3.7(C) determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes 3.7(D) determine when it is appropriate to use measurements of liquid volume (capacity) or weight 3.7(E) determine liquid volume (capacity) or weight using appropriate units and tools

Data Analysis

3.8 Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.

2-3 items	3.8(A) summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals	3.8(B) solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals

Personal Financial Literacy

3.9 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.

0-1 items		3.9(A) explain the connection between human capital/labor and income 3.9(B) describe the relationship between the availability or scarcity of resources and how that impacts cost 3.9(D) explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest 3.9(E) list reasons to save and explain the benefit of a savings plan, including for college
	SEs Not Included in Assessed Curriculum	*3.9(C) identify the costs and benefits of planned and unplanned spending decisions* *3.9(F) identify decisions involving income, spending, saving credit and charitable giving*

32 items (3 Griddable)	**19-21 questions from Readiness Standards**	**11-13 questions from Supporting Standards**

Mathematical Process Standards

3.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Ways to Show

3.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
3.1(E) create and use representations to organize, record, and communicate mathematical ideas
3.1(F) analyze mathematical relationships to connect and communicate mathematical ideas
3.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

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Snapshot – Grade 4 Math

Mathematical Process Standards	
4.1	**Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding.
Tools to Know	
4.1(A)	apply mathematics to problems arising in everyday life, society, and the workplace
4.1(B)	use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
4.1(C)	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

Introduction to Decimals

Connected Knowledge and Skills 4.3

4.2 Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.

STAAR	Readiness Standards		Supporting Standards	
4-6 items	4.2(B)	represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals	4.2(A)	interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left
	4.4(A)	add and subtract whole numbers and decimals to the hundredths place using the standard algorithm	4.2(C)	compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols >, <, or =
			4.2(E)	represent decimals, including tenths and hundredths, using concrete and visual models and money
			4.2(F)	compare and order decimals using concrete and visual models to the hundredths
			4.2(H)	determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line
			4.3(G)	represent fractions and decimals to the tenths or hundredths as distances from zero on a number line

Fractions

Connected Knowledge and Skills 4.2

4.3 Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.

6-9 items	4.2(G)	relate decimals to fractions that name tenths and hundredths	4.3(A)	represent a fraction a/b as a sum of fractions 1/b, where a and b are whole numbers and $b > 0$, including when $a > b$
	4.3(D)	compare two fractions with different numerators and different denominators and represent the comparison using the symbols >, =, or <	4.3(B)	decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations
	4.3(E)	represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations	4.3(C)	determine if two given fractions are equivalent using a variety of methods
			4.3(F)	evaluate the reasonableness of sums and differences of fractions using benchmark fractions 0, 1/4, 1/2, 3/4, and 1, referring to the same whole
			4.3(G)	represent fractions and decimals to the tenths or hundredths as distances from zero on a number line

Whole Number Operations

Connected Knowledge and Skills 4.2

4.4 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.

4.5 Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.

STAAR	Readiness Standards	Supporting Standards
7-9 items	4.4(H) solve with fluency one- and two-step problems involving multiplication and division, including interpreting remainders 4.5(A) represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity 4.5(B) represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence	4.2(D) round whole numbers to a given place value through the hundred thousand place 4.4(B) determine products of a number and 10 or 100 using properties of operations and place value understandings 4.4(C) represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15 4.4(D) use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties 4.4(E) represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations 4.4(F) use strategies and algorithms, including the standard algorithm, to divide up to a four-digit dividend by a one-digit divisor 4.4(G) round to the nearest 10, 100, or 1,000 or use compatible numbers to estimate solutions involving whole numbers

Geometry

4.6 Geometry and measurement. The student applies mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties.

4.7 Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees.

5-6 items	4.6(D) classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size 4.7(C) determine the approximate measures of angles in degrees to the nearest whole number using a protractor	4.6(A) identify points, lines, line segments, rays, angles, and perpendicular and parallel lines 4.6(B) identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure 4.6(C) apply knowledge of right angles to identify acute, right, and obtuse triangles 4.7(D) draw an angle with a given measure 4.7(E) determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures
	SEs Not Included in Assessed Curriculum	*4.7(A) Illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle that is "cut out" by the rays of the angle. Angle measures are limited to whole numbers.* *4.7(B) Illustrate degrees as the units used to measure an angle, where 1/360 of any circle is 1 degree and an angle that "cuts" n/360 out of any circle whose center is at the angle's vertex has a measure of n degrees. Angle measures are limited to whole numbers.*

Measurement

Connected Knowledge and Skills 4.5

4.8 Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement.

4-5 items	4.5(D) solve problems related to perimeter and area of rectangles where dimensions are whole numbers 4.8(C) solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate	4.8(A) identify relative sizes of measurement units within the customary and metric systems 4.8(B) convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table
	SEs Not Included in Assessed Curriculum	*4.5(C) use models to determine the formulas for the perimeter of a rectangle (l + w + l + w or 2l + 2w), including the special form for perimeter of a square (4s) and the area of a rectangle (l x w)*

Data Analysis

4.9 Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.

STAAR	Readiness Standards	Supporting Standards
2-3 items	4.9(A) represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions	4.9(B) solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem-and-leaf plot

Personal Financial Literacy

4.10 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.

1-2 items		4.10(A) distinguish between fixed and variable expenses 4.10(B) calculate profit in a given situation 4.10(E) describe the basic purpose of financial institutions, including keeping money safe, borrowing money, and lending
	SEs Not Included in Assessed Curriculum	*4.10(C) compare the advantages and disadvantages of various savings options* *4.10(D) describe how to allocate weekly allowance among spending, saving, including for college; and sharing*

34 items (3 Griddable)	20-22 questions from Readiness Standards	12-14 questions from Supporting Standards

Mathematical Process Standards

4.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Ways to Show

4.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
4.1(E) create and use representations to organize, record, and communicate mathematical ideas
4.1(F) analyze mathematical relationships to connect and communicate mathematical ideas
4.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

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Snapshot – Grade 5 Math

Mathematical Process Standards

5.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know

5.1(A) apply mathematics to problems arising in everyday life, society, and the workplace
5.1(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
5.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems

Whole Number Operations

5.3 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy.
5.4 Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.

STAAR	Readiness Standards	Supporting Standards
2-5 items	5.3(K) add and subtract positive rational numbers fluently 5.4(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity 5.4(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping	5.3(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division 5.3(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm 5.3(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm 5.4(E) describe the meaning of parentheses and brackets in a numeric expression

Decimals

5.2 Number and operations. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value.
5.3 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy.
5.4 Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.

12-13 items	5.2(B) compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or = 5.3(E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers 5.3(G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm 5.3(K) add and subtract positive rational numbers fluently 5.4(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping	5.2(A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals 5.2(C) round decimals to tenths or hundredths 5.3(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division 5.3(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models 5.3(F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models 5.4(E) describe the meaning of parentheses and brackets in a numeric expression

Fractions

Connected Knowledge and Skills 5.4

5.3 Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy.

STAAR	Readiness Standards	Supporting Standards
3-5 items	5.3(K) add and subtract positive rational numbers fluently 5.3(L) divide whole numbers by unit fractions and unit fractions by whole numbers	5.3(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division 5.3(H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations 5.3(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models 5.3(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models 5.4(A) identify prime and composite numbers

Graphing on Coordinate Plane

5.4 Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.
5.8 Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane.

5-6 items	5.4(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph 5.8(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table	5.4(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph 5.8(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the *x*-coordinate, the first number in an ordered pair, indicates movement parallel to the *x*-axis starting at the origin; and the *y*-coordinate, the second number, indicates movement parallel to the *y*-axis starting at the origin 5.8(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane

Geometry and Measurement

Connected Knowledge and Skills 5.4

5.5 Geometry and measurement. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties.
5.6 Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume.
5.7 Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement.

6-7 items	5.4(H) represent and solve problems related to perimeter and/or area and related to volume 5.5(A) classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties	5.6(A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (*n* cubic units) needed to fill it with no gaps or overlaps if possible 5.6(B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base 5.7(A) solve problems by calculating conversions within a measurement system, customary or metric
	SEs Not Included in Assessed Curriculum	*5.4(G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube (V = l x w x h, V = s x s x s, and V = Bh)*

Data Analysis

5.9 Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.

STAAR	Readiness Standards	Supporting Standards
2-3 items	5.9(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot	5.9(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots 5.9(B) represent discrete paired data on a scatterplot

Personal Financial Literacy

5.10 Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.

1-2 items		5.10(A) define income tax, payroll tax, sales tax, and property tax 5.10(B) explain the difference between gross income and net income 5.10(E) describe actions that might be taken to balance a budget when expenses exceed income 5.10(F) balance a simple budget
	SEs Not Included in Assessed Curriculum	*5.10(C) identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments* *5.10(D) develop a system for keeping and using financial records*

36 items (3 Griddable)	22-24 questions from Readiness Standards	12-14 questions from Supporting Standards

Mathematical Process Standards

5.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Ways to Show

5.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
5.1(E) create and use representations to organize, record, and communicate mathematical ideas
5.1(F) analyze mathematical relationships to connect and communicate mathematical ideas
5.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

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