Measures of Academic Progress (MAP) Connecticut State-Aligned Version 4

The NWEA Goal Structure is a document that represents the content and structure of a state's standards documents. Goal structures are created through an alignment process that links state standards documents to the NWEA item bank. The MAP tests and associated reports for teachers and students are based upon this structure and alignment.

The alignment process begins with a thorough review of a state's standards documents by NWEA's curriculum specialists. The general goal areas or strands within a state's standards that appear across grade levels become the goals in the goal structure (indicated below as bold). Areas in a state's standards documents that are determined to be sub-domains of the goals/strands become the sub-goals in the goal structure (indented under each goal below).

Goal and sub-goal names from the Goal Structure are shortened for technical reasons to create the headings in DesCartes. Report Names are shortened further to accommodate report specifications.

Mathematics 2-5 Goal Structure	Mathematics 2-5 DesCartes	Mathematics 2-5 Report Names
Algebraic Reasoning: Patterns and Functions	**Algebraic Reasoning: Patterns and Functions**	**Algebraic Reasoning**
Understand and describe patterns and functional relationships: Sort, classify and order a group of objects and numbers in more than one way; recognize, extend, and create repeating, growing, number and one and two attribute patterns; describe the pattern and the rule used to make it; analyze patterns and data to make generalizations, make predictions and to identify trends; extend and compare numerical and geometric sequences and classify patterns as growing or repeating; represent, extend and compare geometric and numeric patterns using words, tables, graphs and equations	Describe Patterns & Functional Relationships	

Represent and analyze quantitative relationships in a variety of ways: Describe mathematical relationships and situations involving computation of whole numbers (addition, subtraction, multiplication and division) using words, symbols, open number sentences and equations; represent and describe mathematical relationships using variables or symbols in expressions, equations and inequalities; describe how a change in one variable relates to a change in a second variable in context	Represent & Analyze Quantitative Relationships	
Use operations, properties and algebraic symbols to determine equivalence and solve problems: Demonstrate understanding of equivalence as a balanced relationship of quantities by using the equals sign to relate two quantities that are equivalent and the inequality symbols to relate two quantities that are not equivalent; solve problems and demonstrate an understanding of equivalence in mathematical situations that reflect the commutative and associative properties of addition and multiplication of whole numbers and the distributive property; model, write and solve one-step equations by using appropriate concrete materials that model equivalence; replace variables or symbols in algebraic expressions with given values and evaluate or simplify the expression	Use Properties & Symbols to Determine Equivalence	
Numerical and Proportional Reasoning	**Numerical and Proportional Reasoning**	**Numerical Reasoning**
Understand that a variety of numerical representations can be used to describe quantitative relationships: Represent whole numbers by modeling and writing numbers in expanded forms and regrouped forms; locate, label, compare and order numbers using place value models, number lines and number patterns; represent multiplication and division using a variety of models and strategies such as arrays, pictures, skip counting, extending number patterns, and repeated addition and subtraction; describe the connection between multiplication and division; classify numbers as prime, composite and identify factor pairs*	Understand Representations: Whole Numbers	

Understand that a variety of numerical representations can be used to describe quantitative relationships: Construct and use models, pictures and number lines, including rulers to compare and order fractional parts of a whole and mixed numbers with like and unlike denominators; represent fractions with like and unlike denominators using a variety of materials; construct and use models, number patterns and pictorial representations to extend place value concepts and patterns to decimals; represent equivalent fractions, decimals, ratios and percents using models, pictures, number patterns and common factors; investigate negative integers using place value models, diagrams and number lines and represent negative integers in practical applications*	Understand Representations: Fractions & Decimals	
Use numbers and their properties to compute flexibly and fluently: Count and group objects by tens; read and write numerals; skip count by twos, fives, tens and hundreds; determine whether a set of objects has an odd or even number of items; solve contextual problems involving addition and subtraction of whole numbers using a variety of methods; solve problems involving addition and subtraction of whole numbers with and without regrouping; solve problems involving the multiplication and division of numbers; solve multistep problems for all four operations involving multidigit whole numbers; develop and use algebraic properties (commutative, associative and distributive)*	Compute Fluently: Whole Numbers	
Use numbers and their properties to compute flexibly and fluently: Add and subtract fractions, decimals and mixed numbers using a variety of strategies; solve contextual problems involving the addition and subtraction of fractions with like denominators, decimals and mixed numbers; multiply common fractions and mixed numbers; use ratios and proportions to solve practical problems; determine and compare the value of sets of coins and write the values using decimal notation; identify equivalent ways to represent a given amount of money; multiply and divide decimals and money amounts*	Compute Fluently: Fractions & Decimals	

Geometry and Measurement	Geometry and Measurement	Geometry and Measurement
Use properties and characteristics of two- and three-dimensional shapes and geometric theorems to describe relationships, communicate ideas and solve problems: Use the attributes of parallel sides, perpendicular sides, congruent sides/angles, number and length of sides or faces and number and kinds of angles to describe, classify and sort polygons and solids; create two-dimensional shapes and designs with one or more lines of reflective symmetry; represent the surface of three-dimensional solids using two-dimensional nets; make conjectures about polygons using geometric relationships such as congruence; use formulas for finding the perimeter and area to solve problems	Use Properties & Attributes: 2-D & 3-D Shapes	
Use spatial reasoning, location and geometric relationships to solve problems: Describe location, direction and position of objects or parts of objects; use an x, y coordinate system to plot points, to estimate the distance between points and to determine the horizontal or vertical distance between two points; investigate and predict the result of putting together and taking apart two- and three-dimensional shapes; analyze geometric reflections (flips), rotations (turns), and translations (slides) of plane figures; analyze and describe the effect that changing the dimensions (perimeter) of a polygon has on its area and vice versa	Use Spatial Reasoning & Geometric Relationships	
Develop and apply units, systems, formulas and appropriate tools to estimate and measure: Use calendars and clocks to solve problems involving the conversion of measures of time and elapsed time; solve problems involving telling time using digital and analog clocks; estimate and measure to solve a variety of problems that involve angles, length, area, weight, mass, temperature, capacity and volume in either metric or customary units; solve length problems involving conversions of measure within the customary or metric systems; use cubic inch or cubic centimeter models to find the volume of rectangular solids	Apply Units, Systems, Formulas & Tools to Measure	

Working with Data: Probability and Statistics	Working with Data: Probability and Statistics	Probability and Statistics
Collect, organize and display data using appropriate statistical and graphical methods: Pose questions that can be used to guide data collection, organization, and representation; collect and organize the data that answer the questions using diagrams, charts, tables, lists, pictographs, bar graphs, line plots, circle graph, broken line graphs, double bar graphs, pictographs, stem and leaf plots and scatter plots; compare different representations of the same data set and evaluate how well each kind of display represents the features of the data	Collect, Organize and Display Data	
Analyze data sets to form hypotheses and make predictions: Describe data that have been organized and make comparisons; analyze data that have been collected and organized, to draw and defend conclusions based on the data; discuss, make predictions and write about patterns and trends in categorical and numerical data that have been represented in a variety of ways; determine the mean, mode, range, and median of a data set and how they are affected by a change in the data set	Analyze Data Sets & Make Predictions	
Understand and apply basic concepts of probability: Describe and explain the likelihood of the occurrence of various events; conduct probability experiments and express the probability based on possible outcomes; determine and describe possible combinations, where order does not matter; determine and describe possible outcomes using permutations, where order does matter	Understand & Apply Basic Concepts of Probability	

*Denotes that calculator use is not permitted in this goal or sub-goal of the test.

Measures of Academic Progress (MAP) Connecticut State-Aligned Version 4

Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Algebraic Reasoning: Patterns and Functions	**Algebraic Reasoning: Patterns and Functions**	**Algebraic Reasoning**
Understand and describe patterns and functional relationships: Analyze a variety of patterns (physical phenomena, numeric and geometric patterns, arithmetic sequences) and generalize with algebraic expressions, formulas or equations; identify and describe the independent and dependent variables in a mathematical situation; determine whether relationships are linear or nonlinear	Describe Patterns & Functional Relationships	
Represent and analyze quantitative relationships in a variety of ways: Write expressions, formulas, equations or inequalities using variables to represent mathematical relationships and solve problems; represent and analyze linear and nonlinear functions and relations symbolically and with tables and graphs; represent linear and nonlinear mathematical relationships with verbal descriptions, tables, graphs and equations; determine the constant rate of change in a linear relationship and recognize this as the slope of a line; compare and contrast the slopes and the graphs of lines to classify lines as parallel, perpendicular or intersecting; interpret and describe slope and y-intercepts from contextual situations, graphs and linear equations	Represent & Analyze Quantitative Relationships	

Use operations, properties and algebraic symbols to determine equivalence and solve problems: Evaluate and simplify algebraic expressions, equations and formulas including those with powers using algebraic properties and the order of operations; write, model and solve one- and two-step equations using a variety of methods such as tables, concrete models and the Properties of Equality; manipulate equations, inequalities and functions to solve problems; examine systems of two linear equations in context that have a common solution using tables, graphs and substitution and interpret the solution	Use Properties & Symbols to Determine Equivalence	
Numerical and Proportional Reasoning	**Numerical and Proportional Reasoning**	**Numerical Reasoning**
Understand that a variety of numerical representations can be used to describe quantitative relationships: Compare and order rational and common irrational numbers and locate them on number lines; represent chain multiplication, including powers of 10 in exponential and standard form; factor composite numbers and express them as a product of primes using exponents; represent fractions, mixed numbers, decimals and percentages in equivalent forms; use ratios and rates to compare quantities; understand the relationship between squares and square roots; read, write, compare and solve problems with whole numbers in scientific notation and vice versa*	Understand Numerical Representations	
Use numbers and their properties to compute flexibly and fluently and to reasonably estimate measures and quantities: Apply a variety of strategies to write and solve problems involving addition, subtraction, multiplication and division of positive rational numbers and negative rational numbers; use proportional reasoning to write and solve problems in context; solve a variety of problems in context involving percents; use strategies for multiplying and dividing with numbers expressed in scientific notation*	Use Numbers to Compute Fluently	

Use numbers and their properties to compute flexibly and fluently and to reasonably estimate measures and quantities: Use the inverse relationship between multiplication and division; apply the order of operations and algebraic properties; i.e., commutative, associative, distributive, inverse operations, and the additive and multiplicative identities to write, simplify, and solve problems, including those with parentheses and exponents; develop an understanding of absolute value using a number line while solving problems involving distance*	Use Number Properties to Compute Fluently	
Geometry and Measurement	**Geometry and Measurement**	**Geometry and Measurement**
Use properties and characteristics of two- and three-dimensional shapes and geometric theorems to describe relationships, communicate ideas and solve problems: Classify two- and three-dimensional geometric figures based on their properties; compare and describe the relationships between the angles, sides, perimeter and area of congruent and similar geometric shapes; identify lines of symmetry and reflections, rotations and translations of geometric figures; draw the result of transformations on polygons on coordinate planes; recognize the relationships among radius, diameter, circumference and area of circles; apply relationships in geometric figures to solve problems including the Pythagorean theorem and similar figures	Use Properties & Attributes: 2-D & 3-D Shapes	
Use spatial reasoning, location and geometric relationships to solve problems: Develop and use formulas to determine the surface areas of rectangular prisms, cylinders and pyramids; use measurements to examine the ratios between corresponding side lengths of scale models and similar figures; identify and/or draw two-dimensional representations of three dimensional geometric solids using nets, cross-sections, front, side and top views to solve problems; verify geometric relationships using coordinate geometry	Use Spatial Reasoning & Geometric Relationships	

Develop and apply units, systems, formulas and appropriate tools to estimate and measure: Select and use appropriate strategies, tools and units to estimate and solve measurement problems involving length, perimeter, area, volume, capacity, mass and weight; use formulas to solve problems involving perimeters and areas of polygons and circles; use formulas to solve surface area and volume problems; use strategies to solve problems involving area of irregular polygons and volumes of irregular solids; write and solve problems involving conversions of customary or metric units and units of time; solve a variety of problems involving trigonometric ratios	Apply Units, Systems, Formulas & Tools to Measure	
Working with Data: Probability and Statistics	**Working with Data: Probability and Statistics**	**Probability and Statistics**
Collect, organize and display data using appropriate statistical and graphical methods: Organize and display data using appropriate graphical representation such as, tables and charts, line, bar and circle graphs, Venn diagrams, stem and leaf plots, scatter plots, histograms, box-and-whisker plots	Collect, Organize and Display Data	
Analyze data sets to form hypotheses and make predictions: Make predictions based on patterns and trends from the graphical representations; make predictions from scatter plots by using or estimating a line-of-best-fit; find, use and interpret measures of central tendency and spread, including mean, median, mode, range and outliers; determine how the mean, median, mode and range change as a result of changes in the data set	Analyze Data Sets & Make Predictions	
Understand and apply basic concepts of probability: Express probabilities as fractions, ratios, decimals and percentages; use tree diagrams, lists or the Counting Principle to determine all possible outcomes in permutations and combinations; perform experiments to determine experimental probabilities	Understand & Apply Basic Concepts of Probability	

*Denotes that calculator use is not permitted in this goal or sub-goal of the test.

Measures of Academic Progress (MAP) Connecticut State-Aligned Version 4

Reading Goal Structure	Reading DesCartes	Reading Report Names
Students select and apply strategies to facilitate word recognition and develop vocabulary in order to comprehend text	**Facilitate Word Recognition; Develop Vocabulary**	**Words and Vocabulary**
Students use concepts about print; use phonetic, structural, syntactical clues to read words; decode multisyllabic words	Print Concepts, Phonics, Structure, Syntax	
Students explain common homophones, homographs; identify common antonyms and synonyms	Homophones/Homographs and Synonyms/Antonyms	
Students infer word meanings from common roots, prefixes, suffixes	Common Roots, Prefixes, Suffixes	
Students use appropriate strategies before and during reading in order to construct meaning	**Use Appropriate Strategies Before, During Reading**	**Before and During Reading**
Students make and evaluate predictions; make and justify inferences	Predictions and Inferences	
Students use text structures; use cueing system and context clues to determine meanings of words; use appropriate resources to locate information	Text Structures, Context Clues, Resources	
Students use appropriate strategies after reading in order to construct meaning	**Use Appropriate Strategies After Reading**	**After Reading Meaning**
Students answer questions about fiction and nonfiction texts; follow written directions	Fiction/Nonfiction Question Answers; Directions	
Students explain the influence of setting; determine characters' traits; identify the plot and how actions lead to conflict or resolution	Setting, Character, Plot, Conflict, Resolution	
Students identify and infer underlying theme or main idea in texts; summarize the major actions that define the plot; summarize information, including introduction and closing statements, main idea, most important supporting text-based facts, details and/or ideas	Theme, Main Idea, Summary in Fiction/Nonfiction	

Students interpret, analyze and evaluate text in order to extend understanding and appreciation	Interpret, Analyze and Evaluate Text	Interpretation and Evaluation
Students distinguish between fact and opinion; draw conclusions	Fact and Opinion; Conclusions	
Students recognize organizational patterns of text	Organizational Patterns	
Students analyze the characteristics in a variety of poetic forms and in various genres; explain the impact of literary devices on meaning	Poetic Forms and Literary Devices	
Students evaluate the author's use of various techniques to influence readers' perspectives including the use of figurative language; examine and determine the validity of sources of information; evaluate how an author's experiences, ethics, culture, heritage, ethnicity, values, assumptions and beliefs bias meaning	Perspective, Voice, Language Techniques, Bias	

Measures of Academic Progress (MAP) Connecticut State-Aligned Version 4

Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
Students express, develop and substantiate ideas and experiences through their own writing: spelling	**Spelling**	**Spelling**
Demonstrate proper spelling: spell basic short-vowel, long vowel and consonant blend and digraph patterns; spell common letter patterns; spell regular and common irregular plurals	Spelling: Blends, Patterns, Plurals	
Demonstrate proper spelling: spell common irregular words; spell roots and affixes	Spelling: Irregular Words, Roots, Affixes	
Students express, develop and substantiate ideas and experiences through their own writing: Capitalization/Punctuation/Usage	**Capitalization, Punctuation, Usage**	**Capitals, Usage and Punctuation**
Demonstrate proper capitalization	Proper Capitalization	
Demonstrate proper punctuation; cite sources according to prescribed format	Proper Punctuation; Cite Sources	
Demonstrate proper usage with nouns, pronouns, adjectives and adverbs: use single/plural agreement between nouns and modifiers; show agreement of pronoun and its referent; maintain consistent person; use adverbs vs. adjectives correctly; use comparative and superlative adjectives correctly	Proper Usage with Nouns, Pronouns, and Modifiers	
Demonstrate proper usage with verbs: Use correct subject-verb agreement, use verbs in sentences, e.g., past and present tense, agreement, linking verbs, common irregular verbs	Proper Usage with Verbs	

Demonstrate proper usage with sentences: distinguish between complete and incomplete sentences; combine simple sentences into compound sentences; use parallel construction; do not use double negatives	Proper Usage with Sentences	
Students express, develop and substantiate ideas and experiences through their own writing: Writing Process	**Writing Process**	**Writing Process**
Plan and draft: gather and paraphrases information from a variety of resources using an organizer; develop ideas for a particular topic or purpose; complete draft demonstrating connections among ideas, supported by information	Planning, Gathering Information, Drafting	
Revise: revise, checking for organization, clarity, fluency and elaboration; uses a variety of revision tools or strategies; evaluates feedback and justifies the choice to use feedback	Revision: Traits, Tools, Feedback	
Edit: edit drafts for complete sentences, capitalization, punctuation and usage	Editing: Sentences and Conventions	
Students express, develop and substantiate ideas and experiences through their own writing: Writing Genres, Traits and Crafts	**Writing Genres, Traits and Crafts**	**Writing Genres, Traits/ Crafts**
Use descriptive, narrative, expository, persuasive and poetic genres	Various Writing Genres	
Construct introductions, conclusions; select literary devices to convey a specific meaning; include story elements; use transitions	Introductions, Devices, Elements, Transitions	
Research information from multiple sources for a specific purpose; evaluate the validity of primary and secondary sources	Research, Sources, Validity	