

Measures of Academic Progress (MAP) Colorado State-Aligned Version 3

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
Number Sense and Operations	Number Sense and Operations	Number Sense and Operations
The whole number system describes place value relationships; the decimal number system describes place value patterns and relationships that are repeated in large and small numbers: Read and write numbers from one to 100,000 and to the hundredths place, and explain place value; describe relationships between ones, tens, and hundreds; order a collection of whole numbers; compare sets of objects and use language to describe more, less, or same; compose and decompose multi-digit numbers based on place value; estimate quantities less than 100; apply concepts of squares, primes, composites, factors, and multiples; use the identity, associative, commutative, and distributive properties; describe and use divisibility rules.*	Number Systems: Whole Number and Decimal	

<p>Formulate, represent, and use algorithms to add, subtract, multiply and divide whole numbers: Create stories and models, including linear and difference, to illustrate addition and subtraction; use number relationships such as doubles, one more or one less, and the relationship between composing and decomposing to solve addition and subtraction problems; find the value of a collection of coins and choose coins to have a given value; select and use appropriate methods to estimate sums, differences, products and quotients; use flexible methods of computing; interpret remainders; model multiplication and division using area, linear, and grouping models.*</p>	<p>Formulate, Represent, and Use Algorithms</p>	
<p>In the real number system, rational numbers have multiple equivalent representations: Use drawings, models, and numerals to represent fractions based on a whole shape, number set, or number line; solve comparison problems using models of fractions; find equivalent forms of commonly used fractions, decimals, and percents using models, drawings, and computational strategies; compose and decompose decimals based on place value; model addition, subtraction, and multiplication of fractions, decimals, and percents; use common fractions and percents to calculate parts of whole numbers; represent numbers to 1,000,000 with expanded notation and exponents.*</p>	<p>Rational Numbers: Model, Represent, Compare</p>	
<p>Algebraic Structures</p>	<p>Algebraic Structures</p>	<p>Algebraic Structures</p>
<p>Patterns are based on operations and relationships: Count by and analyze patterns in multiples of 2, 3, 5, 9, 10,11,25, 50 and 100; create and extend repeating patterns using a variety of materials such as numbers, letters, and shapes; extend simple arithmetic and geometric sequences; explain, extend, and use patterns and relationships in solving problems; identify a missing number in a sequence, and describe a rule; analyze and describe patterns and relationships using words, tables, graphs, symbols.</p>	<p>Patterns: Extend, Describe, Analyze</p>	

<p>Number properties and relationships can be used to solve problems: Communicate the relationship between composing and decomposing numbers; use the inverse relationship between adding and subtracting, and between multiplication and division to solve problems; select, describe, and use symbols to express unknown quantities; find the unknown in simple equations; complete input/output tables; express change relationships involving whole numbers with if/then statements, input/output boxes, function tables, and rule statements.</p>	<p>Number Properties, Relationships, and Symbols</p>	
<p>Data Analysis and Probability</p>	<p>Data Analysis and Probability</p>	<p>Data Analysis and Probability</p>
<p>Visual displays and summary statistics are used to describe and interpret data: Formulate a question and hypothesis to design appropriate data collection and display methods; collect and organize data; select and create picture graphs, bar graphs, dot plots, frequency tables, double bar graphs, time plots, and line graphs from a data set; read and explain information from picture graphs, bar graphs, and tally charts; draw conclusions, and make convincing arguments based on categorical and numerical data analysis; describe and interpret data using concepts of clusters, gaps, shape of distribution, range, mode, median and mean.</p>	<p>Visual Displays: Create, Describe, Interpret Data</p>	
<p>Mathematical models are used to determine probability, analyze and describe the outcomes of events: Describe the likelihood of real-life situations using the concepts of impossible, unlikely, likely and certain; formulate a question to test a prediction, determine if a chance device is fair or unfair; organize all possible outcomes of events in a list or chart; use fractions, decimals, and percents to quantify the likelihood of events.</p>	<p>Likelihood and Probability of Events</p>	

Geometric Relationships	Geometric Relationships	Geometric Relationships
<p>Geometric figures are described by their attributes and position in the plane: Recognize, construct and describe two-dimensional shapes by attributes; sort geometric figures; combine and take apart shapes to create new shapes; relate two-dimensional shapes to three-dimensional shapes; compare geometric figures according to the attributes of congruence, symmetry, and angle size; apply concepts of parallel, perpendicular, congruence and line symmetry; recognize, predict and describe the results of transformations; classify and compare angles; use relational vocabulary to describe spatial relationships; name and locate points on a coordinate grid.</p>	<p>Geometric Figures: Attributes and Location</p>	
<p>Appropriate measurement tools, units, and systems are used to measure different attributes: Select an appropriate tool and unit for measuring length, weight, and capacity; measure length using nonstandard units; compare and order objects by length, height, weight, capacity, or price; measure length to the nearest 1/8 inch or millimeter; identify common units of time and temperature; estimate and measure elapsed time; compare and order units of time; determine the perimeter of polygons and area of rectangles; distinguish between area and perimeter; distinguish between appropriate units for area and linear measures; model area using square units; model volume using cubic unit; convert within the standard and metric measurement; use, apply, and select appropriate scales on maps.</p>	<p>Measurement: Appropriate Tools, Units, and Systems</p>	

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

Measures of Academic Progress (MAP) Colorado State-Aligned Version 3

Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Number Sense and Operations	Number Sense and Operations	Number Sense and Operations
<p>In the real number system, rational and irrational numbers are in one to one correspondence to points on the number line; the complex number system includes real numbers and imaginary numbers: Read, write, locate on number line, compare and order integers and positive rational numbers; express whole numbers as products of prime factors with exponents and use prime factorization to find the greatest common factor and least common multiple of two numbers; apply the definition of absolute value; express large and small numbers using scientific notation; approximate the location of square roots between two whole numbers; express the square root of a negative number using imaginary numbers.*</p>	Number Systems: Real and Complex	
<p>Formulate, represent, and use algorithms with real numbers: Use appropriate computation methods that encompass estimation and calculation; estimate sums, differences, products and quotients of rational numbers; add, subtract, multiply and divide rational numbers including integers, positive and negative fractions and decimals; round positive numbers from thousandths through millions; simplify numeric expressions using the order of operations; perform operations on numbers written in scientific notation; use combinatorics (Fundamental Counting Principle, permutations and combinations) to solve problems.*</p>	Formulate, Represent, and Use Algorithms	

Formulate, represent, and use algorithms with rational numbers flexibly, accurately, and efficiently: Solve multi-step word problems involving fractions, decimals and whole numbers; solve problems involving percent of a number, discounts, taxes, simple interest, percent increase, and percent decrease; use estimation strategies to solve problems involving percents.	Application Problems: Percents & Rational Numbers	
Quantities can be expressed and compared using ratios and rates; proportional reasoning involves comparisons and multiplicative relationships among ratios: Apply the multiplicative identity to create equivalent fractions and to reduce fractions to simplest form; express the comparison of two whole number quantities using differences, part-to-part ratios, and part-to-whole ratios; compute unit rates; use ratio relationships to solve for a missing value in a proportion.	Proportional Reasoning: Rates and Ratios	
Algebraic Structures	Algebraic Structures	Algebraic Structures
Patterns can be described using words, tables, and graphs: Extend the pattern and describe the rule for arithmetic and geometric sequences; categorize sequences as arithmetic, geometric, or neither and develop formulas for the general terms related to arithmetic and geometric sequences.	Patterns, Arithmetic & Geometric Sequences	
Quantitative relationships in the real world can be modeled and solved using functions: Represent linear, quadratic, absolute value, power, exponential, logarithmic, rational, trigonometric, and step functions in a table, graph, and equation and convert from one representation to another; identify and interpret the slope and y-intercept; model and graph two linear equations on the same coordinate plane and interpret the point of intersection; evaluate a function; determine the inverse of a function; identify the domain, range, intercepts, zeros, maxima, minima, intervals of increase and decrease, and asymptotes of a function; apply transformations to a parent function; solve and interpret problems using linear, quadratic, exponential functions, and direct and inverse variation.	Functions and Quantitative Relationships	

<p>Properties of algebra, equality, and inequality are used to solve linear equations and inequalities: Evaluate expressions; use the distributive, associative, and commutative properties to simplify algebraic expressions; apply the properties of rational exponents and generate equivalent expressions; solve one-variable equations; solve equations for one variable in terms of the others; solve inequalities in one variable and graph the solution on a number line; solve systems of linear equations and inequalities; find solutions to quadratic and cubic equations; find solutions to equations involving power, exponential, rational and radical functions.</p>	<p>Expressions, Equations, Inequalities</p>	
<p>Data Analysis and Probability</p>	<p>Data Analysis and Probability</p>	<p>Data Analysis and Probability</p>
<p>Questions can be answered by collecting and analyzing data and data displays; the design of a sample survey is of critical importance to analyzing the data and drawing conclusions: Formulate appropriate research questions; recognize that a sample may not represent a population accurately; recognize the use of deceptive scales on a graph; construct and interpret dot plots, histograms, stem-and-leaf plots, box plots, and circle graphs; compare sets of data using shape, measures of central tendency, and spread; given a scatter plot, calculate quadrant count ratio to quantify the strength of the association between two variables for numeric data, and draw a line of fit to make predictions; use time series plots (line graphs) to analyze the trend of a set of data over time; determine the margin of error.</p>	<p>Analyzing Data and Visual Displays</p>	

<p>Mathematical models are used to determine probability: Express the probability of an event using fractions, decimals, and percents; apply and solve problems using the concepts of independence and conditional probability; make a table, tree diagram or an organized list to determine possible outcomes of two or more compound events; predict outcomes of events using experimental and theoretical probabilities; apply and solve problems using the concept of mutually exclusive properties when combining probabilities; evaluate and interpret probabilities using a normal distribution; find and interpret the expected value and standard deviation.</p>	<p>Probability of Events</p>	
<p>Geometric Relationships</p>	<p>Geometric Relationships</p>	<p>Geometric Relationships</p>
<p>Attributes of two- and three-dimensional objects are measurable: Develop and apply formulas for finding area of polygons, circumference and area of circles, and area of composite figures; develop and apply formulas for the surface area and volume; apply the effect of dimensional change involving perimeter, area, and volume; classify polygons; use geometric notation to describe angles, lines, and segments; apply properties of parallel lines and angles including corresponding, exterior, interior, vertical, complementary, and supplementary angles; identify two-dimensional nets of prisms and cylinders; develop conjectures and solve problems about geometric figures; make conjectures involving two-dimensional objects represented with Cartesian coordinates; represent transformations.</p>	<p>Measure and Analyze Attributes of Objects</p>	

<p>Direct and indirect measurements can be used to describe and make comparisons; proportional reasoning is used to make indirect measurements: Select and use appropriate units to measure length, weight, capacity and time; use a protractor to measure angles; describe the relationship between the circumference and diameter of a circle; read and interpret scales on maps; use proportional reasoning to convert among measures; use properties of similar triangles to find unknown lengths; apply the Pythagorean theorem and its converse to solve real-world problems; apply right triangle trigonometry to find measures of lengths and angles; determine the midpoint of a line segment and the distance between two points.</p>	<p>Direct and Indirect Measurement</p>	
---	--	--

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

Measures of Academic Progress (MAP) Colorado State-Aligned Version 3

Reading Goal Structure	Reading DesCartes	Reading Report Names
Reading for All Purposes: Reading Strategies and Comprehension in Literary Texts	Reading Strategies, Comprehending Literary Texts	Literary Texts
Understand How Text Structures, Literary Elements and Genre Affect Meaning: Retell, paraphrase or summarize a literary passage, arranging the events in the correct sequence; summarize using sequence of events and story elements; use signal words and text structure to determine the sequence of major events; identify and describe exposition, conflict, rising and falling action, climax and resolution and explain how they function within the narrative to advance the plot.	Text Structure, Literary Elements, Genre	
Understand Main Ideas, Central Themes and Important Details from Literary Text: Identify main idea and supporting details; locate information to support the author's message or theme; summarize texts to identify relevant and important information, main ideas, and the theme; identify concrete and abstract themes; examine the ways literature is related to the issues and themes of their historical periods; generalize about universal themes, cultural or historical perspectives; interpret and synthesize themes.	Main Ideas, Central Themes, Important Details	
Make Predictions and Inferences And Draw Conclusions: Make predictions and inferences using prior knowledge, pictures or graphic features, and text; draw a conclusion from text and provide details to support the answer; make inferences and draw conclusions based on explicit and implied information; relate a literary work to primary source documents of its literary period or historical setting; describe and contrast characteristics of specific literary movements and perspectives.	Predictions, Inferences and Conclusions	

Understand How Literary Devices and Figurative Language Affect Meaning: Follow and replicate patterns in predictable poems; identify and evaluate how word choice, sensory details, figurative language, literary devices enhance meaning; explain how figurative language contributes to imagery and mood; interpret and describe the effects of literary devices; interpret mood, tone, and literary devices and provide supporting evidence from text; use literary terms to describe and analyze selections; explain the relationship between author's style and literary effect; analyze literary components.	Literary Devices and Figurative Language	
Reading for All Purposes: Reading Strategies and Comprehension in Informative and Persuasive Texts	Comprehending Informative and Persuasive Texts	Informative Texts
Identify and Use Text Features: Identify and use common text features to understand text, answer questions, perform specific tasks, or identify and solve problems; use text features to locate and organize information, to make predictions and to perform specific tasks; interpret graphical representations and connect them to text; describe how text features support the meaning and purpose of the text; use text features and graphical representations to enhance critical analysis of a text.	Identify and Use Text Features	
Understand Author's Strategies Supporting Audience and Purpose: Identify intended effects of rhetorical strategies used by author to influence reader; express author's perspective.	Author's Strategy to Support Audience, Purpose	
Identify and Use Main Idea and Important Details: Summarize main idea using relevant details; locate information to support opinions, predictions, conclusions; locate relevant details to support main idea; organize main ideas and details to paraphrase or summarize; cite text-based evidence as support; identify, paraphrase key ideas, main ideas, supporting ideas in texts.	Main Idea and Important Details	

<p>Understand Organizational Patterns and Text Structures: Use informational text structures to predict, construct meaning, and deepen understanding; use semantic cues and signal words to identify cause/effect and compare/contrast relationships; identify common organizational structures and explain how they aid comprehension; identify key words that signal organizational patterns; explain how various organizational patterns structure information differently; use organizational patterns to guide interpretation.</p>	<p>Organizational Patterns and Text Structures</p>	
<p>Reading for All Purposes: Word Relationships and Meaning</p>	<p>Word Relationships and Meaning</p>	<p>Word Meaning</p>
<p>Understand and Use Knowledge of Base Words and Affixes: Identify base words and their inflectional forms; decode complex spelling patterns; understand words that change spelling to show past tense; read and identify the meaning of words with sophisticated prefixes and suffixes; read multi-syllabic words with and without inflectional and derivational suffixes.</p>	<p>Use Knowledge of Base Words and Affixes</p>	
<p>Use Strategies for Understanding Word Meaning: Connect known words to new words to generate new vocabulary; determine meanings of words, including content specific words using strategies like context and resources; infer meaning of words using structural analysis, context, and knowledge of multiple meanings; use knowledge of word relationships to identify antonyms or synonyms to clarify meaning; use the tone of a passage to determine meaning of a word.</p>	<p>Strategies for Understanding Word Meaning</p>	

Measures of Academic Progress (MAP) Colorado State-Aligned Version 3

Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
Writing and Composition: Using the Writing Process to Plan, Draft, and Revise a Variety of Texts	Use the Writing Process: Plan, Draft, Revise	Writing Process
<p>Planning and Drafting: Organizing, Paragraph Development, Supporting Details: Label and use pictures or graphic organizers to plan writing; Brainstorm ideas; choose planning strategies to support text structure and to select and narrow topic and to generate descriptive and sensory details and organize ideas; establish a central idea, define a clear focus; use transitional words and phrases to link ideas and sections; establish and maintain a controlling idea appropriate to audience and purpose; group related ideas and place them in logical order when writing paragraphs or summaries; use relevant details; select appropriate information that clearly supports a definite purpose, topic, or position; write well-focused texts with an explicit or implicit theme and details; sequence words to create narrative pieces; organize texts using conventional organizational patterns; organize information using a thesis statement in the introduction and transition sentences to link paragraphs; develop paragraphs with clear topics, sufficient supporting details, and conclusions; analyze and improve clarity of paragraphs and transitions; explain how writers use organization and details to communicate their purposes.</p>	<p>Planning and Drafting: Organize, Develop, Support</p>	

<p>Review and Editing: Review and revise ideas and development to improve the depth of ideas and vividness of supporting details; revise texts to enhance the effect on the reader and clarify the theme; evaluate and revise to eliminate unnecessary details, ineffective stylistic devices, and vague or confusing language; revise to improve level of detail and precision of language; critique writing from the perspective of the intended audience; revise writing to strengthen the clarity and vividness of voice, tone, and ideas; revise writing for a central idea, coherent supporting paragraphs, transitions, and an effective conclusion; revise writing by evaluating relationship of central idea, evidence, and organizational pattern; revise text to eliminate logical fallacies and to enhance credibility of ideas and information; edit for correct spelling, punctuation, capitalization, grammar, and complete sentences.</p>	<p>Revising and Editing</p>	
<p>Writing and Composition: Writing Literary, Narrative, Informational, and Persuasive Texts</p>	<p>Write Literary, Narrative, Informational Texts</p>	<p>Write a Variety of Text</p>
<p>Literary/Narrative Texts: Literary Devices, Poetic Techniques: Write personal narratives or simple stories that have a clear beginning, middle, and end; create personal and fictional narratives with a coherent storyline; write using poetic techniques, figurative language, and graphic elements typical of the chosen genre for an intended effect or to engage the intended audience or to support the presentation of implicit or explicit theme; decide on the content and placement of descriptive and sensory details to address the targeted audience and purpose; produce literary and narrative texts using stylistic devices and descriptive details; develop characters both internally and externally; use literary elements to present ideas in a text; integrate the use of organizing techniques that break up sequential presentation of chronology in a story; use a range of appropriate genre features to develop texts.</p>	<p>Literary/Narrative Texts: Literary Devices</p>	



<p>Informational Texts: Logically arrange pictures and words to create simple informational pieces; write letters and procedures, directions, recipes, that follow a logical order and appropriate format; develop texts that explain a process; define a problem and offer a solution or support an opinion; offer a comparison, show cause and effect, or support a point; define or classify a topic; write to explain.</p>	<p>Informational Texts</p>	
<p>Persuasive Texts: Audience: Articulate a position through a concise claim or thesis statement, and advance it using evidence, examples, and counterarguments; explain appeals used by writers trying to persuade an audience; anticipate and address readers' expectations; explain emotional, logical, and ethical appeals used by writers trying to persuade an audience; select and use appropriate rhetorical techniques for a variety of purposes; choose, develop, and refine appeals for desired effect on audience; include cause and effect, and opposing viewpoints in persuasive writing; analyze rhetorical devices used in appeals.</p>	<p>Persuasive Texts: Audience</p>	
<p>Elements of Style: Voice, Tone, Mood, Vivid Language, Vocabulary: Use conventional structures and expectations of literary genres to select content, represent ideas and make connections; use relevant and descriptive details; determine where to add images and sensory details; write with precise nouns, active verbs, and descriptive adjectives; use word choice, sentence structure, and sentence length to create voice and tone in writing; select vocabulary to enhance the central idea and to develop voice and tone for a specific audience, purpose, or situation; manipulate elements of style, imagery, tone.</p>	<p>Elements of Style</p>	

<p>Research Writing and Sources: Provide documentation of sources used in a grade-appropriate format; document information and quotations; use a consistent format for footnotes or end-notes, and use standard bibliographic format to document sources; use in-text parenthetical citations; identify relevant sources for locating information; differentiate between primary and secondary source materials; design research strategies; identify and evaluate sources for appropriateness, accuracy, reliability, validity, timeliness, quality, and completeness of information; identify a topic and formulate open-ended research questions; develop the central idea or focus and potential research question(s); define and narrow a topic for research, to address a specific purpose and audience; identify a clear and significant purpose for research; select and organize information, evidence, details, or quotations that support the central idea or focus; organize and present research appropriately for audience and purpose; distinguish between evidence and inferences; recognize that different sources may have different points of view.</p>	<p>Research Writing and Sources</p>	
<p>Writing and Composition: Using Appropriate and Correct Grammar and Sentence Formation</p>	<p>Use Correct Grammar and Sentence Formation</p>	<p>Grammar and Sentence Forms</p>
<p>Grammar: Apply accurate subject-verb agreement; maintain consistent verb tense within paragraphs; ensure that a verb agrees with its subject in complex constructions; use pronoun-antecedent agreement including indefinite pronouns; use idioms correctly; use adjectives and adverbs correctly in sentences to describe verbs, adjectives, and other adverbs; use comparatives and superlatives correctly in sentences; distinguish between active and passive voice.</p>	<p>Grammar</p>	

<p>Sentence Formation; Complete Sentences: Vary sentence beginnings; use long and short sentences, compound subjects and compound verbs; use coordinating conjunctions and subordinate conjunctions; using prepositional phrases; distinguish between phrases and clauses; identify the various types of clauses; use a variety of phrases (absolute, appositive) accurately; identify fragments, run-ons, fused sentences, comma splices, and revise sentences to eliminate them; identify main and subordinate clauses; write correct, complete sentences; identify and revise sentences that are not grammatically parallel.</p>	<p>Sentence Formation; Complete Sentences</p>	
<p>Writing and Composition: Using Correct and Appropriate Punctuation, Capitalization, and Spelling</p>	<p>Use Correct Punctuation, Capitalization, Spelling</p>	<p>Mechanics and Spelling</p>
<p>Punctuation, Formatting: Apply appropriate spacing between words; use apostrophes to show possession; indent paragraphs; use correct format (indenting paragraphs, parts of a letter, poem, etc.) for intended purpose; use and apply commas and ending punctuation correctly; apply dashes, colons, and semi-colons; use correct punctuation; identify and use appropriate end punctuation; write and punctuate compound and complex sentences correctly; format and punctuate dialogue correctly.</p>	<p>Punctuation and Formatting</p>	
<p>Capitalization: Use capital letters at the beginning of a sentence; identify and use capitalization in proper nouns; capitalize beginnings of sentences and proper nouns, and salutation/closing of a letter; apply correct use of capitalization.</p>	<p>Capitalization</p>	
<p>Spelling: Spell high-frequency words correctly; spell words that follow learned phonetic patterns with accuracy; use reference tools to make sure words are spelled correctly.</p>	<p>Spelling</p>	