

# Measures of Academic Progress (MAP) AERO-Aligned Version 2

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.

<b>Mathematics 2-5 Goal Structure</b>	<b>Mathematics 2-5 DesCartes</b>	<b>Mathematics 2-5 Report Names</b>
<b>Numbers and Operations</b>	<b>Numbers and Operations</b>	<b>Numbers and Operations</b>
Understand and demonstrate a sense of what numbers mean and how they are used: Count by ones, tens, or hundreds; read, write, compare, and order all whole numbers, fractions, mixed numbers and decimals; identify and use place value positions of whole numbers and decimals; use ordinal numbers; demonstrate the meaning of fractions; determine the equivalency between and among fractions, decimals, and percents; illustrate the meaning of integers; represent ratios and proportions and solve problems using models and pictures.	Numbers and Number Sense	
Understand meanings of operations and how they relate to one another and accurately calculate using number relationships, operation rules, and algorithms: Add, subtract, multiply, and divide using nonnegative rational numbers; identify all pairs of factors for a whole number; distinguish between factor and multiple, prime and composite, and odd and even numbers; apply models and use number properties for operations; use appropriate operations to solve multi-step word problems.	Operations on Numbers	



Use estimation techniques to determine the reasonableness of answers and the accuracy of solutions: Estimate the number of objects in a group; estimate solutions to problems including rounding, benchmarks, compatible numbers and evaluate the reasonableness of the solution; use mental math and estimation strategies to predict the results of computations; round whole numbers to 1,000,000 to any place value and round decimals to the nearest whole, 10th, or 100th place.	Estimation Techniques	
<b>Measurement</b>	<b>Measurement</b>	<b>Measurement</b>
Demonstrate an understanding of units of measure and measurable attributes of objects: Determine start, end, and elapsed time; tell time to the nearest minute; determine equivalent periods of time; compare, order, and describe objects by various measurable attributes for length, weight, temperature, and volume/capacity; estimate and convert units of measure for length, weight/mass, and volume/capacity with the same measurement system (metric); estimate temperature in practical situations.	Physical Attributes	
Identify and use units, systems, and processes of measurement: Measure length, perimeter, area, volume/capacity, weight/mass, and temperature to a required degree of accuracy in metric systems; select and use appropriate tools to determine and compare units for measurement of volume/capacity, weight/mass, area, size of angle, temperature, length, distance, and volume in metric systems; use nonstandard units to measure length and cover a given region.	Systems of Measurement	
<b>Patterns, Functions, and Algebra</b>	<b>Patterns, Functions, and Algebra</b>	<b>Algebra</b>
Recognize, describe and develop patterns, relations, and functions and develop and apply mathematical models to represent and understand quantitative relationships: Sort, classify, and label objects by attributes; interpret and write a rule for a function table; create, identify, represent, and describe patterns using objects and numbers; draw conclusions and make predictions from models and tables.	Representation: Patterns, Relations, & Functions	



<p>Represent and analyze mathematical situations and structures using algebraic symbols: Select and/or write number sentences (equations) to find the unknown in problem-solving contexts; devise a rule for an input/output function table; model, explain, and solve open number sentences; create models for the concept of equality; determine the value of missing quantities or variables within equations or number sentences; complete number sentences with the appropriate words and symbols.</p>	Algebraic Models	
<b>Geometry</b>	<b>Geometry</b>	<b>Geometry</b>
<p>Analyze characteristics and properties of 2 and 3 dimensional geometric shapes and develop mathematical arguments about geometric relationships: Analyze and describe the similarities and differences between and among two dimensional geometric shapes, figures, and models; identify, classify, and sort basic geometric figures by shape, size, and geometric attributes; analyze the relationship between three-dimensional geometric shapes and their two-dimensional nets; identify and classify triangles based on their properties; identify, describe, and classify cube, sphere, prism, pyramid, cone, and cylinder in terms of the number and shape of faces, edges, and vertices.</p>	Geometric Properties	
<p>Apply transformations and the use of symmetry, specify locations, and describe spatial relationships using coordinate geometry and other representational systems: Identify shapes that are congruent, similar, and/or symmetrical; predict the results of transformations and the effects of combining, dividing, and changing shapes; identify planes, lines, points, line segments, rays, and angles; locate ordered pairs in the first quadrant; use Venn diagrams.</p>	Transformations & Spatial Relationships	



Data Analysis and Probability	Data Analysis and Probability	Data Analysis and Probability
<p>Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them and select and use appropriate statistical methods to analyze data: Use a variety of graphical representations to organize and represent data; compare data and interpret quantities represented on tables and graphs to make predictions and solve problems; determine the mode, mean, and range for a data set; make predictions and draw conclusions based on data collected from a sample group.</p>	<p>Data: Representation and Analysis</p>	
<p>Develop and evaluate inferences and predictions that are based on data and understand and apply basic concepts of probability: Make predictions and draw conclusions from simple experiments; design and conduct a simple probability experiment using concrete objects to determine the likeliness of events, list all outcomes, and represent the outcomes as a ratio; determine combinations and permutations of given real-world situations by multiple strategies.</p>	<p>Inferences, Prediction, and Probability</p>	



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Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Numbers and Operations	Numbers and Operations	Numbers and Operations
Understand and apply numbers to demonstrate a sense of what numbers mean, how they are used, ways of representing numbers, relationships among numbers, and number systems: Analyze, describe and compare the characteristics of rational and irrational numbers; determine the equivalency between and among fractions, decimals, and percents in contextual situations; compare quantities and solve problems using ratios, rates and percents; recognize and appropriately use exponential and scientific notation.	Numbers and Number Sense	
Understand meanings of operations and how they relate to one another: Determine the Greatest Common Factor and Least Common Multiple of two numbers; use the concepts of number theory to solve problems; use rational and irrational numbers to solve real world and mathematical problems; simplify expressions involving operations on integers, grouping symbols, and whole number exponents using order of operations; manipulate algebraic procedures with real and complex numbers; apply factorials, exponents, and matrices to solve practical problems.	Operations on Numbers	
Use estimation techniques, number relationships, operation rules, and algorithms and determine the reasonableness of answers and the accuracy of solutions: Estimate the answer to an operation involving rational numbers based on the original numbers; estimate algebraic solutions; determine when to use exact value solutions and distinguish between exact value and approximate values.	Estimation Techniques	



<b>Measurement</b>	<b>Measurement</b>	<b>Measurement</b>
Demonstrate an understanding of units of measure and measurable attributes of objects: Estimate and compare units of measure for temperature, length, volume/capacity, and weight/mass metric systems; convert from one unit to another within the same measurement system (metric); convert units within a given measurement system to solve problems.	Physical Attributes	
Identify and use units, systems, and processes of measurement, estimate and measure to a required degree of accuracy and precision, use spatial reasoning and apply the properties and relationships of geometric figures to represent, investigate, analyze, and solve problems, and estimate, compute, and assess reasonableness of solutions: Select and use appropriate tools and units to determine the measurements needed for calculating perimeter, circumference, area, surface area, and volume.	Systems of Measurement	
<b>Patterns, Functions, and Algebra</b>	<b>Patterns, Functions, and Algebra</b>	<b>Algebra</b>
Recognize, describe and develop patterns, relations and functions: Create and use tables and charts to extend a pattern in order to describe a rule and find missing terms in a sequence; use inductive reasoning to extend patterns to predict the nth term; identify and describe patterns represented by tables, graphs, and sequences; distinguish between and explain when real-life numerical patterns are linear/arithmetic or exponential/geometric.	Patterns, Relations and Functions	
Use algebraic methods to represent, analyze, and solve abstract and practical mathematical situations and structures using algebraic symbols, develop and apply mathematical models to represent and understand quantitative relationships, and analyze change in various contexts: Simplify and evaluate numerical and algebraic expressions; identify, graph, and describe the graphs of basic families of functions including linear, absolute value, quadratic, and exponential; create and solve linear and quadratic equations and inequalities; solve systems of equations and inequalities.	Algebraic Models & Representation	



<b>Geometry</b>	<b>Geometry</b>	<b>Geometry</b>
Analyze characteristics and properties of 2 and 3 dimensional geometric shapes, develop mathematical arguments about geometric relationships, and apply the properties and relationships of geometric figures to represent, investigate, analyze, and solve problems: Use two-dimensional representations of three dimensional objects to visualize and solve problems; classify triangles based on side and angle measurements; identify, classify, and compare regular and irregular polygons.	Geometric Properties	
Apply transformations and the use of symmetry, specify locations, and describe spatial relationships using coordinate geometry and other representational systems: Identify congruent and similar figures; determine the measure of missing angles of triangles and the missing side of a right triangle; calculate slope, midpoint, and distance; use vector methods, matrices, and transformations; construct geometric models; identify and graph trigonometric functions; make and test conjectures.	Transformations & Spatial Relationships	
<b>Data Analysis and Probability</b>	<b>Data Analysis and Probability</b>	<b>Data Analysis and Probability</b>
Formulate and pose questions that can be addressed with data, collect, organize analyze, and represent data in order to make decisions and predictions, select and use appropriate statistical methods to analyze data, and develop and evaluate inferences and predictions that are based on data: Determine regression equations to model; summarize and interpret single-variable data by choosing measures of central tendency and dispersion; analyze the validity of statistical conclusions and the use, misuse, and abuse of data.	Data: Representation, Analysis, & Predictions	



<p>Understand and apply basic concepts of probability: Find the probability of simple events, compound events, and independent events using a variety of methods including the fundamental counting principle; compare the experimental and theoretical probability of a given situation; find the number of combinations possible in mathematical and practical situations; compute permutations and combinations.</p>	<p>Probability</p>	
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Reading Goal Structure	Reading DesCartes	Reading Report Names
<b>Students will read fluently using the skills and strategies of the reading process</b>	<b>Skills and Strategies of the Reading Process</b>	<b>Reading Process</b>
Decode using a variety of reading strategies, including phonics, syllabication, and recognition of word parts; Apply knowledge of word relationships, root words, suffixes, and affixes to determine the meaning of words; Apply knowledge of Greek, Latin, and Anglo-Saxon roots and affixes to infer the meaning of words	Phonics, Syllabication, Root Words, and Affixes	
Use knowledge of word relationships, as well as context clues, to determine the meaning of specialized vocabulary and to understand the precise meaning of grade-level-appropriate words; Use the dictionary as a tool for reading (e.g., pronunciation, parts of speech, etc.)	Use Context Clues and Use the Dictionary as a Tool	
Apply knowledge of synonyms, antonyms, and idioms to determine the meaning of phrases; Discern the meaning and relationship between pairs of words encountered in analogies (e.g., connotation and denotation)	Synonyms, Antonyms, Idioms, and Analogies	
<b>Students will comprehend, respond to, and analyze a wide variety of literary texts</b>	<b>Comprehend and Analyze a Variety of Literary Texts</b>	<b>Literary Texts</b>
Identify the main events of the plot and their causes. Name the structural elements of the plot (e.g., exposition, rising action, climax), the plot's development, and explain the extent to which conflicts are addressed and resolved	Main Events and Structural Elements of the Plot	

<p>Recognize the genre features of fiction and non-fiction, folk tales, and chapter books; Describe the structural difference of various forms of literature (e.g., poetry, fantasies, fables, myths, legends, and fairy tales, biographies); determine the purposes and characteristics of a variety of genres (poetry, fantasies, myths, historical fiction, novels and novellas, non-fiction, autobiography and biography); Identify characteristics of sub-genres (e.g., pastoral, satire, parody) that are used in poetry, fictional prose, drama, novel, short story, essay, and other basic genres</p>	<p>Recognize Genre Features and Characteristics</p>	
<p>Identify and define the presence of figurative language in literary works, including simile, metaphor, hyperbole, and personification; Identify and define significant literary devices that define a writer's style (e.g., metaphor, simile, hyperbole, personification, symbolism, dialect, and irony) and use those elements to interpret the work; Analyze how irony, tone, mood, style, and "sound" of language are used to achieve specific rhetorical and aesthetic purposes and to create meaning; Identify the use of rhyme, rhythm, and alliteration in poetry, and analyze ways in which imagery, personification, figures of speech, and word sounds are used in poetry and prose to create meaning; Understand the function of literary devices (e.g., archetypes, satire, parody, allegory) in fictional or poetic text and use these to interpret and criticize the text perceptively</p>	<p>Figurative Language, Literary Devices, Style</p>	
<p>Make and confirm predictions about text by using prior knowledge and ideas presented in text. e. Make logical predictions about text by using prior knowledge and ideas presented in text, including key plot elements, illustrations, titles, topic sentences, key words, characterization, symbolism, and foreshadowing clues</p>	<p>Make and Confirm Logical Predictions About Text</p>	
<p>Use knowledge of the situation and setting and of a character's traits and motivations to determine the causes for that character's actions; Understand relevance of setting (place, time, and customs) to the mood, tone, and meaning of text</p>	<p>Setting and Character's Traits and Motivations</p>	

Produce written or oral summaries of books that contain the main ideas of the text and the most significant details	Summaries that Contain the Main Ideas and Details	
Identify and analyze recurring comparative themes (e.g., good and evil, heroism, appearance v. reality, traditional and contemporary) across works; Explain connections among essential ideas, arguments, and perspectives of literary text	Identify and Analyze Themes, Ideas, Arguments	
<b>Students will apply skills and strategies appropriate for reading non-fiction texts</b>	<b>Skills and Strategies for Reading Non-fiction Text</b>	<b>Non-fiction Texts</b>
Identify and use structural patterns found in informational texts (e.g., compare and contrast, cause and effect, sequential-chronological order) to strengthen comprehension. Understand the unity, coherence, logic, internal consistency, and structural patterns of text. Understand how clarity is affected by the patterns of organization, use of rhetorical devices, repetition of key ideas, syntax, and word choice in text	Structural Patterns and Patterns of Organization	
Use text organizers such as heading, topic sentences, and graphic organizers to determine main ideas of a text and to locate information; Summarize and paraphrase non-fiction texts, accurately conveying the main ideas and the most significant (critical) details, and conveying the underlying meaning of the original text	Determine Main Idea, Locate Information, Summarize	
Distinguish between fact and opinion in informational text and expository texts; Identify and evaluate the validity, and effectiveness in the logic of arguments set forth in non-fiction texts, their appeal to audiences both friendly and hostile, and the extent to which they anticipate and address reader concerns and counterclaims (e.g., appeal to reason, appeal to authority, appeal to pathos/emotion); Make inferences and draw conclusions based on implicit and explicit information	Fact, Opinion, Validity, Inferences, Conclusions	

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Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
<b>Students will write with a command of informal and formal English: Grammar</b>	<b>Write with a Command of English: Grammar</b>	<b>Grammar, Usage</b>
Types of Sentences: Construct simple and compound sentences; Construct complex sentences using appositives, participial phrases, and prepositional phrases; Use subordination, coordination, apposition, and other devices to indicate clearly the relationship between written ideas; Identify and use a variety of sentence structures; Use parallel structure in all written discourse, including similar grammatical forms to present items in a series (e.g., consistency with tense, possessives, or plurals), complements, and items juxtaposed for emphasis	Types of Sentences	
Agreement and Usage: Use correct subject-verb agreement; Use regular and irregular verbs correctly; Use pronouns and personal pronouns correctly; Use adjectives correctly	Agreement and Usage	
<b>Students will write with a command of informal and formal English: Mechanics</b>	<b>Write with a Command of English: Mechanics</b>	<b>Spell, Punctuate, Capitalize</b>
Punctuation: Use apostrophes appropriately in possessives and contractions; Use correct ending punctuation for statements and questions; Use correct punctuation (e.g., commas in direct quotations, apostrophes in possessives and contractions, parentheses, and properly identified titles)	Punctuation	
Capitalization: Use correct capitalization	Capitalization	
Spelling: Use spelling conventions consistent with one internationally recognized system	Spelling	

Students will write with clarity, logic, validity, and effectiveness	Write with Clarity, Logic, and Effectiveness	Paragraphs and Sentences
<p>Editing and Revising; Sentences and Paragraphs: Edit written work to reflect appropriate and effective grammar (e.g., verb tense, pronoun antecedent, etc.), spelling, and correct use of punctuation and capitalization; Edit and revise drafts for clarity and coherence; Edit and revise to improve coherence and progression by adding, deleting, consolidating, and rearranging text; Revise writing for word choice, appropriate organization, consistent point of view, and transitions among paragraphs, passages, and ideas; Revise writing to clarify, highlight individual voice, give sentence variety, and enhance subtlety of meaning and tone in ways that are consistent with purpose, audience, and genre; Write clear, coherent sentences; Use descriptive words that add interest and meaning to writing; Write a brief paragraph with main idea and supporting details; Create a multiple-paragraph composition that provides an introductory paragraph; establishes and supports a central idea with a topic sentence; includes supporting paragraphs with facts, details, explanations, and transitions; concludes with a paragraph that summarizes the points; Use conventional structures (e.g., chronological order, cause and effect, similarity and difference, and posing and answering a question) for conveying information</p>	<p>Editing, Revising; Sentences, Paragraphs</p>	

Students will write on a wide range of topics and for a variety of purposes and audiences	Write on Range of Topics, Purposes, Audiences	Genre, Purpose, Audience
<p>Types of Writing, Genres: Write letters that follow the conventional style for the type of document; Write in a variety of genres, including: narrative, poetry and verse, persuasive, expository, short stories; Create persuasive essays that establish a controlling impression, have a coherent thesis, and make a clear and well-supported conclusion; Write biographies, autobiographies, short stories, and/or narratives that relate a clear, coherent incident, event, or situation by using well-chosen details; reveal the significance of, or the writer’s attitude about, the subject; and employ narrative and descriptive strategies; Write poetry that effectively uses poetic devices; Write persuasive compositions that include well-defined theses, make clear and knowledgeable judgments; support arguments with detailed evidence, examples, and reasoning, differentiating between evidence and opinion; and arrange details, reasons, and examples, effectively anticipating and answering reader concerns and counter-arguments; Write fictional, autobiographical, and biographical narratives that narrate a sequence of events and communicate their significance to the audience; develop the narrative elements with attention to perspective and concrete sensory details and language; Write complex poetry that makes effective use of metaphors, similes, meter, rhyme, and sound devices</p>	<p>Types of Writing, Genres</p>	

<p>Audience, Purpose, and Research: Select a focus, organization, and point of view based upon purpose, audience; Use formal and informal English appropriate to audience and circumstance; Use a variety of techniques to convey personal style and voice and demonstrate an awareness of audience; Demonstrate understanding of the elements of discourse (e.g., purpose, speaker, audience, form); Use style (e.g., irony), and related elements for specific rhetorical and aesthetic purposes; Use language in natural, fresh, and vivid ways, eliminating clichés and jargon, to create a specific tone; Locate information in a table of contents, glossary, and index; Use reference materials (e.g., dictionary, thesaurus, picture encyclopedia); Define focus to guide research; Quote or paraphrase information sources, citing them appropriately; Use a variety of primary and secondary sources, determining the nature and usefulness of each; Research information for reports that frame a key question about an issue or situation; Use clear research questions to develop creative and critical research strategies (e.g., field studies, oral histories, interviews, experiments, electronic sources); Use systematic strategies (e.g., outlining, annotated bibliographies) to organize and record information; Use information derived from primary and secondary sources to support or enhance an argument; include information from relevant perspectives, taking the validity and reliability of sources into consideration; Cite sources parenthetically within text; Provide a formal bibliography using a standard format</p>	<p>Audience, Purpose, and Research</p>	
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