

Measures of Academic Progress (MAP) Ohio 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
Number, Number Sense and Operations	Number, Number Sense, and Operations	Number Sense and Operations
Number and number systems: Represent whole numbers , decimals, fractions and mixed numbers using words, numerals and physical models; represent and compare numbers less than 0; develop the concept of ratio, and percent; compare, order and generate equivalent forms of whole numbers, fractions, mixed numbers, decimals and percents; solve problems involving counting money and making change; classify numbers as even, odd, prime or composite; identify and represent factors and multiples; identify perfect squares and their roots.	Number and Number Systems	

<p>Meaning of operations; computation and estimation; whole numbers: Model, represent and explain addition, subtraction, multiplication, and division; interpret remainders; demonstrate fluency in adding, subtracting, multiplying and dividing whole numbers; use commutative, associative, distributive, identity and inverse properties; use order of operations; analyze and solve multi-step problems; estimate the results of computations; develop and explain strategies for performing computations mentally.</p>	<p>Operations & Computation: Whole Numbers</p>	
<p>Meaning of operations; computation and estimation; fractions and decimals: Use physical models, visual representations, paper and pencil, points of reference, and equivalent forms to add and subtract commonly used fractions with like and unlike denominators and decimals; estimate the results of computations involving, fractions and decimals, using a variety of strategies.</p>	<p>Operations & Computation: Fractions & Decimals</p>	
<p>Measurement</p>	<p>Measurement</p>	<p>Measurement</p>
<p>Measurement units: Identify and select appropriate units of measure for length, area, volume, weight, time, and temperature; compare and order objects of different lengths, areas, weights and capacities; establish personal or common referents for units of measure to make estimates and comparisons; understand the differences among linear, square and cubic units; identify units of time and compare calendar elements; order events based on time; tell time to the nearest minute and find elapsed time.</p>	<p>Measurement Units</p>	
<p>Use measurement techniques and tools: Make unit conversions within a measurement system; measure length, weight, and volume using standard and non-standard units; select and use appropriate measurement tools; use measurement tools to construct a figure; read thermometers in both Fahrenheit and Celsius scales; estimate the measure of angles, use a tool to measure and draw angles; develop formulas for and find perimeter, area, and volume; solve multi-step problems involving measurement.</p>	<p>Use Measurement Techniques and Tools</p>	

Geometry and Spatial Sense	Geometry and Spatial Sense	Geometry and Spatial Sense
<p>Characteristics and properties: Predict new shapes formed by combining; identify, compare, sort, analyze, model and describe properties of two-dimensional shapes and three-dimensional objects; identify and define triangles; identify radius, diameter, center and circumference; identify and classify right, acute, obtuse and straight angles; identify, describe, and label, points, lines, planes, segment, ray, vertex, angle, skew, intersecting, parallel and perpendicular and identify models in the environment.</p>	<p>Characteristics and Properties</p>	
<p>Spatial relationships; transformations and symmetry; visualization and geometric models: Name the relative position of objects, distance and directional words; identify and determine whether two-dimensional shapes are congruent or similar; find, name, identify paths, specify locations and plot ordered pairs on a coordinate plane; identify two-dimensional figures with line symmetry; identify, describe and use reflections, rotations, and translations; recognize three-dimensional objects from different positions.</p>	<p>Spatial Relationships, Symmetry, Models</p>	
Patterns, Functions and Algebra	Patterns, Functions, and Algebra	Patterns and Algebra
<p>Use patterns, relations and functions: Sort, classify and order objects by size, number, attributes and other properties; continue repeating and growing patterns with materials, pictures and geometric items; describe, extend and make generalizations of patterns and relationships occurring in computation, numerical patterns, geometry, graphs and other applications; represent, analyze, and justify a rule for a pattern using physical materials, visual representations, words, tables or graphs.</p>	<p>Use Patterns, Relations, and Functions</p>	

<p>Use algebraic representation; analyze change: Use words, objects, pictures, numbers, number sentences, variables, and other symbols to represent a problem situation; understand equivalence and extend the concept to situations involving symbols; solve open sentences; write, solve and explain simple mathematical statements; create and interpret the meaning of equations and inequalities representing problem situations; use models, graphs and tables to solve problems, draw conclusions and make predictions.</p>	<p>Use Algebraic Representations & Analyze Change</p>	
<p>Data Analysis and Probability</p>	<p>Data Analysis and Probability</p>	<p>Data Analysis and Probability</p>
<p>Data collection; statistical methods: Determine appropriate data to be collected to answer questions; represent, read, interpret, and make predictions using tally charts, picture graphs, tables, bar graphs, line plots, frequency tables, circle graphs, line graphs, Venn diagrams, and double bar graphs; select a graph that is appropriate for the type of data; recognize that data may vary from one population to another; identify untrue or inappropriate statements about a given set of data; determine and use the range, mean, median and mode.</p>	<p>Data Collection & Statistical Methods</p>	
<p>Probability: Place events in order of likelihood, impossible, unlikely, equal, likely, certain; list all possible outcomes in a given situation; conduct simple probability experiments, identify the probability, and draw conclusions; make predictions based on experimental and theoretical probabilities; solve problems involving possible arrangements or combinations of two to four objects; list and count all possible combinations using one member from each of several sets.</p>	<p>Probability</p>	

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Mathematics 6+ Goal Structure	Mathematics 6+ DesCartes	Mathematics 6+ Report Names
Number, Number Sense and Operations	Number, Number Sense, and Operations	Number Sense and Operations
<p>Number and number systems: Relate concepts of ratio, proportion and percent; decompose numbers using factors and exponents; apply the prime factorization; use scientific notation; describe, compare, order and determine equivalent forms for rational and irrational numbers; recognize subsets of the real number system; identify whether properties (closure, identity, inverse, commutative and associative) hold for operations; determine what properties hold for matrix addition multiplication.</p>	Number and Number Systems	
<p>Meaning of operations; computation and estimation; whole numbers: use the order of operations to simplify numerical expressions; explain and use the inverse and identity properties and use inverse relationships in problem solving situations; explain the effects of operations such as multiplication or division.</p>	Operations & Computation: Whole Numbers	
<p>Meaning of operations; computation and estimation; rational and real numbers: Explain the meaning of adding, subtracting, multiplying and dividing integers, nth root, and negative or 0 exponents; represent, estimate, compute, apply order of operations and solve problems involving integers, fractions, decimals, ratio, proportion, percent, scientific notation, real numbers, absolute value, fractional and integer exponents, roots, radicals, factorial notation, matrices, and complex numbers; determine when an estimate is sufficient.</p>	Operations & Computation: Rational & Real Numbers	

Measurement	Measurement	Measurement
<p>Measurement units: Determine the number of significant digits in a measurement; compare and order the relative size of common U.S. customary units and metric units; convert units within the same measurement system and from one measurement system to another; solve and determine the reasonableness of the results for problems involving rates and derived measurements; convert rates within the same measurement system.</p>	<p>Measurement Units</p>	
<p>Use measurement techniques and tools: develop formulas for perimeter, circumference, area, surface area, and volume; find perimeter and area of circles, triangles, quadrilaterals, sectors, and composite shapes; find surface area and volume of prisms, pyramids, cylinders, spheres, cones, and composite objects; solve real-world problems involving distances, area, surface area, rates, volume and density; find the sum of the interior and exterior angles of regular polygons; calculate relative error.</p>	<p>Use Measurement Techniques and Tools</p>	
Geometry and Spatial Sense	Geometry and Spatial Sense	Geometry and Spatial Sense
<p>Characteristics and properties: define, explain, classify and describe properties of geometric figures and objects; identify and define relationships between parallel, perpendicular and intersecting lines and planes; use the Pythagorean Theorem; prove theorems; define the basic trigonometric ratios; use proportions, scale drawings and right triangle trigonometry to solve problems that include unknown distances and angle measures; solve problems involving central and inscribed angles, chords, radii, and arcs.</p>	<p>Characteristics and Properties</p>	

<p>Spatial relationships; transformations and symmetry; visualization and geometric models: Represent and analyze shapes using coordinate geometry; solve problems involving proportional relationships, scale factors, similarity, and congruence; construct triangles, quadrilaterals, and congruent or similar figures; identify symmetry; describe transformations such as reflections, rotations, translations and dilations, and combinations of translations; representations of three-dimensional geometric objects.</p>	<p>Spatial Relationships, Symmetry, Models</p>	
<p>Patterns, Functions and Algebra</p>	<p>Patterns, Functions, and Algebra</p>	<p>Patterns and Algebra</p>
<p>Use patterns, relations and functions: Represent and analyze patterns, rules with words, tables, graphs and variable expressions; describe and compare characteristics of linear, quadratic, exponential, square root, absolute value, basic trigonometric, polynomials, logarithms, and rational functions; e.g., general shape, number of roots, domain, range, rate of change, maximum or minimum; use the relationship among zeros, roots, and solutions; define function, $f(x)$ notation; describe iterative processes.</p>	<p>Use Patterns, Relations, and Functions</p>	
<p>Use algebraic representation; analyze change: Simplify and evaluate algebraic expressions; use symbolic algebra, graphs and tables to represent situations; apply properties of integer exponents; solve linear equations and inequalities, formulas, quadratic equations, radicals, and complex roots; model and solve problems with matrices; represent linear equations; compute and interpret slope; graph circles; solve systems of linear equations and inequalities; differentiate and explain types of change.</p>	<p>Use Algebraic Representations & Analyze Change</p>	

Data Analysis and Probability	Data Analysis and Probability	Data Analysis and Probability
<p>Data collection; statistical methods: Read, create and interpret line graphs, circle graphs, histograms, box-and-whisker plots, stem-and-leaf plots, scatterplots, and lines of best fit; design a statistical experiment, survey or study; collect and interpret the data with graphical displays, descriptive statistics, concepts of outliers, variability, causation, correlation and standard deviation; identify misuses of statistical data; describe and compare various types of studies.</p>	<p>Data Collection & Statistical Methods</p>	
<p>Probability: Use theoretical and experimental probability to estimate probabilities and solve problems; differentiate between probability and odds; model geometric probability; describe, create and analyze a sample space and use it to calculate probability; compute probabilities of compound events; identify situations involving independent and dependent events, and explain differences between, and common misconceptions about probabilities associated with those events.</p>	<p>Probability</p>	

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Reading Goal Structure	Reading DesCartes	Reading Report Names
Phonemic Awareness, Word Recognition, and Acquisition of Vocabulary	Phonemic Awareness, Word Recognition, Vocabulary	Phonemic Aware Word Rec, Vocab
Use letter-sound knowledge and structural analysis to decode words; identify rhyming words with the same or different spelling patterns; use knowledge of common word families and complex word families to sound out unfamiliar words	Use Letter-Sound, Structural Analysis, Spelling	
Recognize and identify words through context	Recognize and Identify Words Through Context	
Determine the meaning of synonyms, antonyms, homophones, homonyms and homographs	Synonyms/Antonyms, Homophones/Homonyms/Homographs	
Use knowledge of Greek, Latin and Anglo-Saxon roots, prefixes and suffixes to understand complex words; apply the knowledge of prefixes, suffixes and roots to analyze the meanings of words; compound words; contractions	Roots, Affixes, Compounds, and Contractions	
Reading Process: Comprehension Strategies	Reading Process: Comprehension Strategies	Reading: Comprehension
Apply reading comprehension strategies, including making predictions, comparing and contrasting, recalling, summarizing, making inferences, and drawing conclusions; predict content, events and outcomes by using text features, such as chapter titles, section headers, illustrations and story topics	Comprehension Strategies and Text Features	
Answer literal, inferential, evaluative and synthesizing questions to demonstrate comprehension	Literal, Inferential, Evaluative and Synthesizing	

Reading Applications: Informational, Technical and Persuasive Text	Reading Applications: Informational Texts	Applications: Informational
Identify, understand, and evaluate organizational patterns; use text features to locate information; make inferences about informational text from the title page, table of contents and chapter headings; evaluate the effectiveness of information found in maps, charts, tables, graphs, diagrams, cutaways and overlays; distinguish the characteristics of consumer materials, functional or workplace documents; analyze the structure and features of functional and workplace documents; analyze a set of directions	Organizational Patterns; Locating and Inferring	
Identify techniques, including repetition of ideas, appeals to authority, reason, and emotion, bandwagon, testimonial, transfer, glittering generalities, bait and switch, syntax, and word choice that authors use to accomplish their purpose and reach their intended audience; identify examples of propaganda, bias and stereotyping; identify an author's argument or viewpoint; identify the author's purpose for writing, including to explain, entertain, persuade or inform, and the intended audience for the text	Rhetorical Techniques, Author's Purpose	
Understand the essential elements (e.g., why, who, where, what, when and how) of informational text; identify the main ideas and supporting details of informational text; summarize main ideas in informational text; make inferences; identify and analyze fact and opinion in informational text	Identifying Essential Information, Summarizing	
Reading Applications: Literary Text	Reading Applications: Literary Texts	Applications: Literary Texts
Explain how literary techniques and devices are used in a literary text; recognize irony; explain how authors use symbols; identify and describe the effect of using sound devices, including alliteration, assonance, consonance and onomatopoeia in literary texts; identify and explain the use of figurative language in literary works, including idioms, similes, hyperboles, metaphors and personification	Literary Techniques and Devices	

<p>Explain the defining characteristics of literary forms and genres, including poetry, drama, myths, biographies, autobiographies, science fiction, fiction and non-fiction; recognize and differentiate characteristics of subgenres, including satire, parody and allegory</p>	<p>Literary Forms and Genres</p>	
<p>Identify the main and minor events of the plot; explain character interactions and conflicts; identify point of view; recognize the difference between first- and third-person narration; analyze setting in a literary text; analyze ways in which the author conveys mood and tone; identify and explain an author's use of direct and indirect characterization; describe methods authors use to influence readers' feelings and attitudes; summarize stated and implied themes</p>	<p>Literary Elements</p>	

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Language Usage Goal Structure	Language Usage DesCartes	Language Usage Report Names
Writing Processes	Writing Processes	Writing Processes
Establish a clear thesis statement for informational writing, or a clear plan or outline for narrative writing; use strategies (e.g., brainstorming, lists, rough outlines, diagrams, maps, webs and Venn diagrams notes and outlines) to plan writing	Establish a Thesis Statement for Writing	
Determine a purpose and audience, and strategies (e.g., adapting focus, content structure, point of view, and formality) to address purpose and audience	Determine a Purpose, Audience, and Strategies	
Organize writing into an effective and engaging introduction, body, and conclusion; use paragraph form in writing, including topic sentences that arrange paragraphs in a logical sequence, using effective transitions and closing sentences and maintaining coherence across the whole through the use of parallel structures	Organize Writing: Use Paragraphs, Transitions	
Use a variety of sentence structures and lengths (e.g., simple, compound and complex sentences; parallel or repetitive sentence structure)	Use Variety of Sentence Structures and Lengths	
Use precise language, action verbs, sensory details, colorful modifiers and style as appropriate to audience and purpose	Use Precise Language, Action Verbs, Sensory Detail	
Analyze clarity of writing, consistency of point of view, and effectiveness of organizational structure	Analyze Clarity, Point of View, and Structure	
Add and delete examples and details to better elaborate on a stated central idea, to develop more precise analysis or persuasive argument, or to enhance plot, setting and character in narrative texts; rearrange words, sentences and paragraphs and add transitional words and phrases to clarify meaning and achieve specific aesthetic and rhetorical purposes	Add/Delete Detail, Transition, Phrase, for Clarity	



Proofread writing, edit to improve conventions (e.g., grammar, spelling, punctuation, and capitalization), identify and correct fragments and run-ons, and eliminate inappropriate slang or informal language	Proofread; Edit Conventions, Fragments, Slang	
Writing Applications	Writing Applications	Writing Applications
Write narratives that pace action and develop an engaging plot (e.g., tension and suspense); that maintain a clear focus and point of view; that use sensory details, descriptive details, vivid language, and dialogue to develop plot, character and setting; that use a range of strategies and literary devices including figurative language to enhance style and tone	Write Narratives that Develop Plot, Character	
Write interpretive, evaluative, and analytical responses to literature that demonstrate an understanding of the text; that are organized around clear key ideas; that support judgments with specific references to the text; that analyze the author's use of stylistic devices, and identify and assess the impact of possible ambiguities, nuances and complexities within text	Write Interpretive/Evaluative Literary Responses	
Write formal, informal (e.g., thank you notes, letters of request), and business letters that are formatted to convey ideas, state problems, make requests or give compliments and which follow letter format (e.g., date, proper salutation, body, closing and signature)	Write Formatted Formal, Informal, Business Letters	
Write informational essays or reports, including research, that organize information with a clear introduction, body and conclusion following common expository structures when appropriate (e.g., cause-effect, comparison-contrast); that include facts, details and examples to illustrate important ideas; that consider the validity and reliability of primary and secondary sources	Write Informational Essays or Reports	
Write functional documents (e.g., requests for information, resumes, job applications, memos, proposals) that report, organize and convey information accurately	Write Functional Documents	

<p>Compose open-ended questions for research; identify appropriate sources; determine the accuracy of sources and the credibility of the author by analyzing the sources' validity (e.g., authority, accuracy, objectivity, publication date and coverage, etc.); analyze the complexities and discrepancies in information and systematically organize relevant information to support central ideas, concepts and themes; integrate quotations and citations into written text to maintain a flow of ideas; use style guides to produce oral and written reports that give proper credit for sources; select an appropriate structure for organizing information in a systematic way (e.g., notes, outlines, charts, tables and graphic organizers); paraphrase and summarize the findings</p>	<p>Write Research Reports</p>	
<p>Write persuasive compositions that support arguments with detailed evidence; that exclude irrelevant information; that support assertions using rhetorical devices, including appeals to emotion or logic and personal anecdotes; that develop arguments using a variety of methods (e.g., examples, beliefs, expert opinion, cause-effect reasoning)</p>	<p>Write Persuasive Compositions</p>	
<p>Writing Conventions: Mechanics</p>	<p>Conventions: Mechanics</p>	<p>Conventions: Mechanics</p>
<p>Spell multi-syllabic words</p>	<p>Spell Multi-syllabic Words</p>	
<p>Spell frequently misspelled and high-frequency words</p>	<p>Spell Frequently Misspelled, High-frequency Words</p>	
<p>Use correct spelling conventions</p>	<p>Use Correct Spelling Conventions</p>	
<p>Use correct capitalization</p>	<p>Use Correct Capitalization</p>	
<p>Use correct punctuation: commas, commas in a series, end marks, apostrophes in contractions and possessives, quotation marks, semicolons, colons, hyphens, dashes, brackets</p>	<p>Use Correct Punctuation</p>	

Writing Conventions: Grammar and Usage	Conventions: Grammar, Usage	Conventions: Grammar, Usage
Conjugate regular and irregular verbs in all tenses; use verbs, including perfect tenses, transitive and intransitive verbs and linking verbs	Conjugate Regular/Irregular Verbs in all Tenses	
Use parallel structure to present items in a series and items juxtaposed for emphasis	Use Parallel Structure	
Use clauses (e.g., main, subordinate, dependent, independent) and phrases (e.g., gerund, infinitive, participial)	Use Clauses and Phrases	
Use proper placement of modifiers	Use Proper Placement of Modifiers	
Use all eight parts of speech (e.g., noun, pronoun, verb, adverb, adjective, conjunction, preposition, interjection)	Use All Eight Parts of Speech	
Use subject-verb agreement with collective nouns, indefinite pronouns, compound subjects and prepositional phrases	Use Subject-Verb Agreement	
Use nominative, objective, possessive, indefinite and relative pronouns	Use Pronouns	
Use conjunctions and interjections	Use Conjunctions and Interjections	
Use adverbs	Use Adverbs	