

**ALIGNMENT OF MONTESSORI MATERIALS AND LESSONS WITH  
COLORADO ACADEMIC STANDARDS**

**~Fourth Grade~**

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## Reading, Writing, and Communicating

### 1. Oral Expression and Listening

|  | Standards and Evidence Outcomes   | Montessori Materials, Instructional Methods, And Tools   | Measuring Methods And Tools  |
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| <p>1. A clear communication plan is necessary to effectively deliver and receive information</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</li> <li>b. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</li> <li>c. Follow agreed-upon rules</li> </ul> | <p>Work Time, Circle Time, Lit Groups, Classroom Problem Solving, Read Aloud, Moral Stories, Grace and Courtesy, Community Building, Presentation of Work, Book Reports, Writer's Workshop, Poetry Slam, Songs</p> | <p>Formative Assessments, Summative Assessments, Observations, Documentation</p> |

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|  | <p>for discussions and carry out assigned roles.</p> <ul style="list-style-type: none"><li>d. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.</li><li>b. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.</li><li>c. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</li><li>d. Identify the reasons and evidence a speaker provides to support particular points.</li><li>e. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</li><li>f. Add audio recordings and visual displays to presentations when</li></ul> |  |  |
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|  | <p>appropriate to enhance the development of main ideas or themes.</p> <p>g. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.</p> |  |  |
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## 2. Reading for All Purposes

|  | Standards and Evidence Outcomes  | Montessori Materials, Instructional Methods, And Tools  | Measuring Methods And Tools  |
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| <p>1. Comprehension and fluency matter when reading literary texts in a fluent way</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Use Key Ideas and Details to:               <ul style="list-style-type: none"> <li>a. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</li> <li>b. Identify and draw inferences about setting, characters (such as motivations, personality traits), and plot.</li> <li>c. Determine a theme of a story, drama, or poem from details in the text; summarize the text.</li> <li>d. Describe in depth a character, setting, or event in a story or drama, drawing on specific details</li> </ul> </li> </ul> | <p>Research, Word Studies, Literature Circles (guiding reading), Author Study, Biography Study,</p> <p>Supplemental:<br/>Power Builders/SRAs, Poetry Studies,</p> | <p>Formative Assessments, Summative Assessments, Observations, Documentation</p> |

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|  | <p>in the text (e.g., a character's thoughts, words, or actions).</p> <ul style="list-style-type: none"><li>e. Describe the development of plot (such as the origin of the central conflict, the action of the plot, and how the conflict is resolved)</li></ul> <p>b. Use Craft and Structure to:</p> <ul style="list-style-type: none"><li>a. Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).</li><li>b. Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.</li><li>c. Compare and contrast the point of view from which different stories are</li></ul> |  |  |
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|  | <p>narrated, including the difference between first- and third-person narrations.</p> <ul style="list-style-type: none"><li>c. Use Integration of Knowledge and Ideas to:<ul style="list-style-type: none"><li>a. Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.</li><li>b. Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.</li><li>c. Summarize text by identifying important ideas and sequence and by providing supporting details, while maintaining sequence.</li></ul></li><li>d. Use Range of Reading and</li></ul> |  |  |
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|  | <p>Complexity of Text to:</p> <ul style="list-style-type: none"> <li>a. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.</li> <li>b. Read familiar texts orally with fluency, accuracy, and prosody (expression)</li> </ul>   |   |  |
| <p>2. Comprehension and fluency matter when reading informational and persuasive texts in a fluent way</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Use Key Ideas and Details to: <ul style="list-style-type: none"> <li>i. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</li> <li>ii. Determine the main idea of a text and explain how it is supported by key details; summarize the text.</li> <li>iii. Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text,</li> </ul> </li> </ul> | <p>Cultural Control Charts, Cultural Works (example: Timeline of Life, Fundamental Needs of Humans, Civilization Timeline, Kingdom Studies), Research, Word Studies, Literature Circles (guiding reading), Author Study, Biography Study, Cultural Nomenclature</p> <p>Supplemental:<br/>Power Builders/SRAs, Poetry Studies, Research Outlines, Project Planners, Graphic Organizers</p> |  |

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|  | <p>including what happened and why, based on specific information in the text.</p> <ul style="list-style-type: none"><li>iv. Skim materials to develop a general overview of content</li><li>v. Scan to locate specific information or to perform a specific task (finding a phone number, locating a definition in a glossary, identifying a specific phrase in a passage)</li></ul> <p>b. Use Craft and Structure to:</p> <ul style="list-style-type: none"><li>i. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.</li><li>ii. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.</li><li>iii. Compare and contrast a firsthand and secondhand</li></ul> |  |  |
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|  | <p>account of the same event or topic; describe the differences in focus and the information provided.</p> <ul style="list-style-type: none"><li>iv. Identify common organizational structures (paragraphs, topic sentences, concluding sentences) and explain how they aid comprehension</li><li>v. Use text features (bold type, headings, visuals, captions, glossary) to organize or categorize information</li><li>vi. Identify conclusions</li></ul> <p>c. Use Integration of Knowledge and Ideas to:</p> <ul style="list-style-type: none"><li>i. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</li></ul> |  |  |
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|   | <ul style="list-style-type: none"> <li>ii. Explain how an author uses reasons and evidence to support particular points in a text.</li> <li>iii. Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</li> <li>d. Use Range of Reading and Complexity of Text to: <ul style="list-style-type: none"> <li>i. By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.</li> </ul> </li> </ul> |   |  |
| <p>3. Knowledge of complex orthography (spelling patterns), morphology (word meanings), and</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> <li>i. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and</li> </ul> </li> </ul>   | <p>Etymology Studies, Morphology Studies, Word Studies, Lit Groups (guided reading), Grammar Studies, Sentence Analysis</p> <p>Supplemental:<br/>Latin Study, Instructional Spelling Program,</p> |  |

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| <p>word relationships to decode (read) multisyllabic words contributes to better reading skills</p> | <p>morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.</p> <ul style="list-style-type: none"><li>b. Read with sufficient accuracy and fluency to support comprehension.<ul style="list-style-type: none"><li>i. Read grade-level text with purpose and understanding.</li><li>ii. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression.</li><li>iii. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</li></ul></li><li>c. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.<ul style="list-style-type: none"><li>i. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a</li></ul></li></ul> |  |  |
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|  | <p>word or phrase.</p> <ul style="list-style-type: none"><li>ii. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).</li><li>iii. Read and understand words with common prefixes (un-, re-, dis-) and derivational suffixes (-ful, -ly, -ness)</li><li>iv. Read and understand words that change spelling to show past tense: write/wrote, catch/caught, teach/taught</li><li>v. Read multisyllabic words with and without inflectional and derivational suffixes</li><li>vi. Infer meaning of words using explanations offered within a text</li><li>vii. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and</li></ul> |  |  |
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|  | <p>determine or clarify the precise meaning of key words and phrases.</p> <p>d. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"><li>i. Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context.</li><li>ii. Recognize and explain the meaning of common idioms, adages, and proverbs.</li><li>iii. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).</li></ul> <p>e. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g.,</p> |  |  |
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|  | wildlife, conservation, and endangered when discussing animal preservation). |  |  |
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### 3. Writing and Composition

|  | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>  | <b>Measuring Methods And Tools</b> |
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| 1. The recursive writing process is used to create a variety of literary genres for an intended audience | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.               <ul style="list-style-type: none"> <li>i. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.</li> <li>ii. Provide reasons that are supported by facts</li> </ul> </li> </ul> | <p>Sentence Analysis, Grammar Boxes, Cultural Research Work</p> <p>Supplemental:<br/>           Writer's Workshop, Step Up, Six Traits Writing, Write Source Text Books, Guided Outlines, Graphic Organizers</p> |                                    |

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|  | <p>and details.</p> <ul style="list-style-type: none"><li>iii. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).</li><li>iv. Provide a concluding statement or section related to the opinion presented.</li></ul> <p>b. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</p> <ul style="list-style-type: none"><li>i. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.</li><li>ii. Choose planning strategies to support text structure and intended outcome</li><li>iii. Use dialogue and description to develop experiences and events or show the</li></ul> |  |  |
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|   | <p>responses of characters to situations.</p> <ul style="list-style-type: none"> <li>iv. Use a variety of transitional words and phrases to manage the sequence of events.</li> <li>v. Use concrete words and phrases and sensory details to convey experiences and events precisely.</li> <li>vi. Provide a conclusion that follows from the narrated experiences or events.</li> </ul> <p>c. Write poems that express ideas or feelings using imagery, figurative language, and sensory details</p> |  |  |
| 2. Informational and persuasive texts use the | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Write informative/explanatory texts to examine a topic and</li> </ul>   | <p>Sentence Analysis, Grammar Boxes, Cultural Research Work</p> <p>Supplemental:</p> |  |

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| <p>recursive writing process</p> | <p>convey ideas and information clearly.</p> <ul style="list-style-type: none"> <li>i. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.</li> <li>ii. Choose planning strategies to support text structure and intended outcome</li> <li>iii. Identify a text structure appropriate to purpose (sequence, chronology, description, explanation, comparison-and-contrast</li> <li>iv. Organize relevant ideas and details to convey a central idea or prove a point</li> <li>v. Develop the topic with facts, definitions, concrete details,</li> </ul> | <p>Writer's Workshop, Step Up, Six Traits Writing, Write Source Text Books, Guided Outlines, Graphic Organizers</p> |  |
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|   | <p>quotations, or other information and examples related to the topic.</p> <p>vi. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).</p> <p>vii. Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>viii. Provide a concluding statement or section related to the information or explanation presented.</p> |   |  |
| <p>3. Correct sentence formation, grammar, punctuation, capitalization, and</p> | <p><b>Students Can:</b></p> <p>a. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.</p>   | <p>Sentence Analysis, Grammar Studies, Word Studies, Punctuation Key Lessons</p> <p>Supplemental:<br/> Writer's Workshop<br/> Conventions, Editing Process, Published Writing, Projects for</p> |  |

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| <p>spelling are applied to make the meaning clear to the reader</p> | <ul style="list-style-type: none"> <li>b. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.</li> <li>c. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.</li> <li>d. Use correct format (indenting paragraphs, parts of a letter, poem, etc.) for intended purpose</li> <li>e. Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none"> <li>i. Choose words and phrases to convey ideas precisely.</li> <li>ii. Choose punctuation for effect.</li> <li>iii. Differentiate between</li> </ul> </li> </ul> | <p>a variety of audiences, Instructional Spelling Program, keyboarding software</p> |  |
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|  | <p>contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).</p> <p>f. Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"><li>i. Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why).</li><li>ii. Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses.</li><li>iii. Use modal auxiliaries (e.g., can, may, must) to convey various conditions.</li><li>iv. Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a</li></ul> |  |  |
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|  | <p>red small bag).</p> <ul style="list-style-type: none"><li>v. Form and use prepositional phrases.</li><li>vi. Use compound subjects (Tom and Pat went to the store) and compound verbs (Harry thought and worried about the things he said to Jane) to create sentence fluency in writing</li><li>vii. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.</li></ul> <p>g. Correctly use frequently confused words (e.g., to, too, two; there, their).</p> <ul style="list-style-type: none"><li>i. Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing.</li><li>ii. Use correct capitalization.</li><li>iii. Use commas and quotation marks to</li></ul> |  |  |
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|  | <p>mark direct speech and quotations from a text.</p> <p>iv. Use a comma before a coordinating conjunction in a compound sentence.</p> <p>v. Spell grade-appropriate words correctly, consulting references as needed.</p> |  |  |
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#### 4. Research and Reasoning

|   | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>  | <b>Measuring Methods And Tools</b> |
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| 1. Comprehending new information for research is a process undertaken with discipline both alone and within | <p><b>Students Can:</b></p> <p>i. Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> | <p>Montessori Cultural Curriculum</p> <p>Supplemental:<br/>Research Projects, Drafting Process, Editing Process,</p> |                                    |

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| groups | <ul style="list-style-type: none"> <li>ii. Identify a topic and formulate open-ended research questions for further inquiry and learning</li> <li>iii. Present a brief report of the research findings to an audience</li> </ul> <p>b. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <ul style="list-style-type: none"> <li>i. Identify relevant sources for locating information</li> <li>ii. Locate information using text features, (appendices, indices, glossaries, and table of content)</li> <li>iii. Gather information using a variety of resources (reference materials, trade books, online resources, library databases, print and media resources)</li> </ul> | <p>Gathering Sources of Information, Publishing, Teacher directed and independent study, Group Presentations, Point of View Studies, Lit Groups,</p> |  |
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|  | <ul style="list-style-type: none"><li>iv. Read for key ideas, take notes, and organize information read (using graphic organizer)</li><li>v. Interpret and communicate the information learned by developing a brief summary with supporting details</li><li>vi. Develop relevant supporting visual information (charts, maps, diagrams, photo evidence, models)</li></ul> <p>c. Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"><li>i. Apply grade 4 Reading standards to literature (e.g., "Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character's thoughts,</li></ul> |  |  |
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|   | <ul style="list-style-type: none"> <li>ii. words, or actions].").<br/>Apply grade 4 Reading standards to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").</li> </ul>   |  |  |
| <p>2. Identifying implications, concepts, and ideas enriches reasoning skills</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Consider negative as well as positive implications of their own thinking or behavior, or others thinking or behavior</li> <li>b. State, elaborate, and give an example of a concept (for example, state, elaborate, and give an example of friendship or conflict)</li> <li>c. Identify the key concepts and ideas they and others use</li> <li>d. Ask primary questions of clarity, significance, relevance, accuracy, depth, and breadth</li> </ul> | <p>Self-reflections, Peace Curriculum, Community Meetings,</p> |  |



**Mathematics- 4th Grade**

**1. Number Sense, Properties, and Operations**

|   | <p align="center"><b>Standards and Evidence Outcomes</b></p>   | <p align="center"><b>Montessori Materials, Instructional Methods, And Tools</b></p>  | <p align="center"><b>Measuring Methods And Tools</b></p> |
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| <p>1. The decimal number system to the hundredths place describes place value patterns and relationships that are repeated in large and small numbers and forms the foundation for efficient algorithms</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Generalize place value understanding for multi-digit whole numbers               <ul style="list-style-type: none"> <li>i. Explain that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.</li> <li>ii. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form.</li> <li>iii. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of</li> </ul> </li> </ul> | <p><i>Golden beads, golden mat, golden bead frame, stamp game, checkerboard</i></p> <p><i>Fractions are Decimals, Centesimal frame, Decimal board, classification of numbers</i></p> <p><i>Fraction skittles, Fraction bank, Percent finder,</i></p> |  |

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|  | <p>comparisons.</p> <p>b. Use place value understanding to round multi-digit whole numbers to any place.</p> <p>c. Use decimal notation to express fractions, and compare decimal fractions</p> <ul style="list-style-type: none"> <li>i. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.<sup>1</sup></li> <li>ii. Use decimal notation for fractions with denominators 10 or 100.<sup>2</sup></li> <li>iii. Compare two decimals to hundredths by reasoning about their size.<sup>3</sup></li> </ul> |   |  |
| <p>2. Different models and representations can be used to compare fractional parts</p> | <p><b>Students Can:</b></p> <p>a. Use ideas of fraction equivalence and ordering to:</p> <ul style="list-style-type: none"> <li>i. Explain equivalence of fractions using drawings and models.<sup>4</sup></li> <li>ii. Use the principle of fraction equivalence to recognize and</li> </ul>   | <p>Sieve of Eratosthenes, Pegboard, Table of Multiples, Table of Factors, Fraction Skittles,</p> <p>Adaptations/Supplemental Materials:<br/>Geometry insets (finding fractions), Venn Diagrams,</p> |  |

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|  | <p>generate equivalent fractions.</p> <p>b. Compare two fractions with different numerators and different denominators,<sup>5</sup> and justify the conclusions.<sup>6</sup></p> <ul style="list-style-type: none"><li>i. Build fractions from unit fractions by applying understandings of operations on whole numbers.</li><li>ii. Apply previous understandings of addition and subtraction to add and subtract fractions:<sup>7</sup><ul style="list-style-type: none"><li>1. Compose and decompose fractions as sums and differences of fractions with the same denominator in more than one way and justify with visual models.</li><li>2. Add and subtract mixed numbers with like denominators.<sup>8</sup></li></ul></li><li>iii. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.<sup>9</sup></li><li>iv. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</li></ul> | <p>Greatest Common Factor and Lowest Common Multiple works, Word problems,</p> <p>(Houston Montessori Command Math)</p> |  |
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|  | <ol style="list-style-type: none"> <li>1. Express a fraction <math>a/b</math> as a multiple of <math>1/b</math>.<sup>10</sup></li> <li>2. Use a visual fraction model to express <math>a/b</math> as a multiple of <math>1/b</math>, and apply to multiplication of whole number by a fraction.<sup>11</sup></li> <li>3. Solve word problems involving multiplication of a fraction by a whole number.<sup>12</sup></li> </ol>  |  |  |
| <p>3. Formulate, represent, and use algorithms to compute with flexibility, accuracy, and efficiency</p> | <p><b>Students Can:</b></p> <ol style="list-style-type: none"> <li>a. Use place value understanding and properties of operations to perform multi-digit arithmetic. <ol style="list-style-type: none"> <li>i. Fluently add and subtract multi-digit whole numbers using standard algorithms.</li> <li>ii. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.</li> <li>iii. Find whole-number quotients and remainders with up to four-digit dividends and one-digit</li> </ol> </li> </ol> | <p>Golden mat, Ratio and Proportion Work, Golden Rectangle, Large Bead Frame, Checkerboard, Test Tube Division, Stamp Game, Euclid's Laws, Bank Game, Four Yellow Rectangles, Equivalence Cabinet, Hierarchical Materials, Command Cards, Negative Snake, Cube Layout, Stamp Game Squaring, Square Roots, Golden Bead Squaring,</p> <p>Supplemental:<br/>Logic and Story problems, Real World Math (muffin</p> |  |

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|  | <p>divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.</p> <p>iv. Illustrate and explain multiplication and division calculation by using equations, rectangular arrays, and/or area models.</p> <p>v. Use the four operations with whole numbers to solve problems.</p> <p>vi. Interpret a multiplication equation as a comparison.<sup>13</sup></p> <p>vii. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p>viii. Multiply or divide to solve word problems involving multiplicative comparison.<sup>14</sup></p> <p>ix. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.</p> <p>x. Represent multistep word problems with equations using a variable to represent the</p> | <p>tin/chocolate bar multiplication), Marcy Cook Math, Number Properties: Identity property, Commutative Property, Associative Property, Distributive Property, Youth Entity: Financial Literacy</p> |  |
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|  | <ul style="list-style-type: none"> <li>xi. unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</li> <li>xii. Using the four operations analyze the relationship between choice and opportunity cost (PFL)</li> </ul> |  |  |
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Resources for Abstract Practice: Challenge Math by Edward Zaccaro

## 2. Patterns, Functions, and Algebraic Structures

|  | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>   | <b>Measuring Methods And Tools</b> |
|--|---|---|------------------------------------|
| 1. Number patterns and relationships can be represented by symbols | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Generate and analyze patterns and identify apparent features of the pattern that were not explicit in the rule itself.<sup>1</sup> <ul style="list-style-type: none"> <li>i. Use number relationships to find the missing number in a sequence</li> </ul> </li> </ul> | <p>Wooden Cubing Materials, Binomial and Trinomial Cubes, Pegboard, Sieve of Eratosthenes, Table of Factors/Multiples Research,</p> <p>Supplemental:<br/>Function Machines/In and</p> |                                    |

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|  | <ul style="list-style-type: none"> <li>ii. Use a symbol to represent and find an unknown quantity in a problem situation</li> <li>iii. Complete input/output tables</li> <li>iv. Find the unknown in simple equations</li> </ul> <p>b. Apply concepts of squares, primes, composites, factors, and multiples to solve problems</p> <ul style="list-style-type: none"> <li>i. Find all factor pairs for a whole number in the range 1–100.</li> <li>ii. Recognize that a whole number is a multiple of each of its factors.</li> <li>iii. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number.</li> <li>iv. Determine whether a given whole number in the range 1–100 is prime or composite.</li> </ul> | <p>Out tables, Abstract Practice,</p> |  |
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### 3. Data Analysis, Statistics, and Probability

|  | <b>Standards and Evidence Outcomes</b> | <b>Montessori Materials, Instructional Methods, And Tools</b> | <b>Measuring Methods And Tools</b> |
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| 1. Visual displays are used to represent data | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Make a line plot to display a data set of measurements in fractions of a unit (<math>1/2</math>, <math>1/4</math>, <math>1/8</math>).</li> <li>b. Solve problems involving addition and subtraction of fractions by using information presented in line plots.<sup>1</sup></li> </ul> | <p>Finger Charts, Pythagoras Table, Fraction Insets,</p> <p>Supplemental:<br/>Graphing Works,<br/>Measurement Tools</p> |  |

#### 4. Shape, Dimension, and Geometric Relationships

|  | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>   | <b>Measuring Methods And Tools</b> |
|--|---|---|------------------------------------|
| 1. Appropriate measurement tools, units, and systems are used to measure different | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. <ul style="list-style-type: none"> <li>i. Know relative sizes of</li> </ul> </li> </ul> | <p>Linear Study, Area Study, Volume Study, Equivalence Cabinet, Lower El Geometry Cabinet,</p> <p>Supplemental:</p> |                                    |

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| <p>attributes of objects and time</p> | <p>measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec.</p> <p>ii. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.<sup>1</sup></p> <p>iii. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.</p> <p>iv. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p>v. Apply the area and perimeter formulas for rectangles in real world and mathematical problems.<sup>2</sup></p> <p>b. Use concepts of angle and measure</p> | <p>Measurement Tools, Metric System works, Measurement Foss kit, Independent projects, Command Cards, Houston Montessori Cards, Albenese Control Cards, Word problem cards, Complementary and Supplementary Angle work</p> |  |
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|  | <p>angles.</p> <ul style="list-style-type: none"> <li>i. Describe angles as geometric shapes that are formed wherever two rays share a common endpoint, and explain concepts of angle measurement.<sup>3</sup></li> <li>ii. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</li> <li>iii. Demonstrate that angle measure as additive.<sup>4</sup></li> <li>iv. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems.<sup>5</sup></li> </ul> |  |  |
| <p>2. Geometric figures in the plane and in space are described and analyzed by their attributes</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines.</li> <li>b. Identify points, line segments, angles, and perpendicular and parallel lines in two-dimensional figures.</li> <li>c. Classify and identify two-dimensional figures according to attributes of line relationships or angle size.<sup>6</sup></li> <li>d. Identify a line of symmetry for a two-</li> </ul>   | <p>Lower El Geometry Studies, Geometry Nomenclature,</p> |  |

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|  | dimensional figure. <sup>7</sup> |  |  |
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Science- 4<sup>th</sup> Grade

### 1. Physical Science

|  | <b>Standards and Evidence Outcomes</b>   | <b>Montessori Materials, Instructional Methods, And Tools</b> | <b>Measuring Methods And Tools</b> |
|--|--|---|------------------------------------|
| 1. Energy comes in many forms such as light, heat, sound, magnetic, chemical, and electrical | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Identify and describe the variety of energy sources</li> <li>b. Show that electricity in circuits requires a complete loop through which current can pass</li> <li>c. Describe the energy transformation that takes place in electrical circuits where light, heat, sound, and magnetic effects are produced</li> <li>d. Use multiple resources - including print, electronic, and human - to locate information about different sources of</li> </ul> |   |                                    |

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|  | renewable and nonrenewable energy |  |  |
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## 2. Life Science

|   | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>  | <b>Measuring Methods And Tools</b> |
|---|---|--|------------------------------------|
| 1. All living things share similar characteristics, but they also have differences that can be described and classified | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Use evidence to develop a scientific explanation of what plants and animals need to survive</li> <li>b. Use evidence to develop a scientific explanation for similarities and/or differences among different organisms (species)</li> <li>c. Analyze and interpret data representing variation in a trait</li> <li>d. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate questions about characteristics of living things</li> </ul> | <i>Plant Kingdom, Animal Kingdom, The Five Kingdoms of Life, The Fungus Kingdom, Fungi Cards, Classification of Invertebrates, Internal Functions of Vertebrates, Protoctista Kingdom, Prokaryote Kingdom, Plant Cells, Internal Parts of the Plant, Eukaryote Cell, Prokaryote Cell, Animal Cells, Types of Bird Feet, Beaks, Nests, and Feathers, scientific</i> |                                    |

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|   |  | <i>method, research,</i> |  |
| 2. Comparing fossils to each other or to living organisms reveals features of prehistoric environments and provides information about organisms today | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Use evidence to develop a scientific explanation for: 1. What fossils tell us about a prehistoric environment 2. What conclusions can be drawn from similarities between fossil evidence and living organisms</li> <li>b. Analyze and interpret data to generate evidence about the prehistoric environment</li> <li>c. Evaluate whether reasoning and conclusions about given fossils are supported by evidence</li> <li>d. Use computer simulations that model and recreate past environments for study and entertainment</li> </ul> |                          |  |
| 3. There is interaction and interdependence between and among living and nonliving components of ecosystems   | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Use evidence to develop a scientific explanation on how organisms adapt to their habitat</li> <li>b. Identify the components that make a habitat type unique</li> <li>c. Compare and contrast different habitat types</li> <li>d. Create and evaluate models of the</li> </ul>   |                          |  |

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|  | <p>flow of nonliving components or resources through an ecosystem</p> <p>e. Make a plan to positively impact a local ecosystem</p> <p>f. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate endangered habitats</p> |  |  |
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### 3. Earth Systems Science

|   | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>   | <b>Measuring Methods And Tools</b> |
|---|---|---|------------------------------------|
| 1. Earth is part of the solar system, which includes the Sun, Moon, and other bodies that orbit the Sun in predictable patterns that lead to observable | <p><b>Students Can:</b></p> <p>a. Gather, analyze, and interpret data about components of the solar system</p> <p>b. Utilize direct and indirect evidence to investigate the components of the solar system</p> <p>c. Gather, analyze, and interpret data about the Sunrise and Sunset, and Moon movements and phases</p> <p>d. Develop a scientific explanation regarding relationships of the</p> | The Study of the Solar System, models, scientific process, constellations, astronomy, telescopes, Space exploration, comets |                                    |

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| paths of objects<br>in the sky as<br>seen from Earth | components of the solar system |  |  |
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Social Studies- 4<sup>th</sup> Grade

1. History

|   | Standards and Evidence Outcomes   | Montessori Materials, Instructional Methods, And Tools   | Measuring Methods And Tools |
|---|---|--|-----------------------------|
| <p>1. Organize and sequence events to understand the concepts of chronology and cause and effect in the history of Colorado</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Construct a timeline of events showing the relationship of events in Colorado history with events in United States and world history</li> <li>b. Analyze primary source historical accounts related to Colorado history to understand cause-and-effect relationships</li> <li>c. Explain the cause-and-effect relationships in the interactions among people and cultures that have lived in or migrated to Colorado</li> <li>d. Identify and describe how major political and cultural groups have affected the development of the region</li> </ul> | <p>History of Colorado timelines, people and cultures, cause and effect, primary sources, research and reports, analyze patterns</p> |                             |

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| <p>2. The historical eras, individuals, groups, ideas and themes in Colorado history and their relationships to key events in the United States</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Analyze various eras in Colorado history and the relationship between these eras and eras in United States history, and the changes in Colorado over time</li> <li>b. Describe interactions among people and cultures that have lived in Colorado</li> <li>c. Describe the development of the political structure in Colorado history. Topics to include but not limited to an understanding of the Colorado Constitution and the relationship between state and national government</li> <li>d. Describe the impact of various technological developments. Topics to include but not limited to the state of Colorado, including changes in mining technology; changes in transportation; early 20th century industrial changes; and mid- to late 20th century nuclear and computer technological changes</li> </ul> | <p>Political structure, geographic, economic, cultural, technological changes and their influences</p> |  |
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## 2. Geography

|   | Standards and Evidence Outcomes  | Montessori Materials, Instructional Methods, And Tools        | Measuring Methods And Tools |
|---|--|---|-----------------------------|
| <p>1. Use several types of geographic tools to answer questions about the geography of Colorado</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Answer questions about Colorado regions using maps and other geographic tools</li> <li>b. Use geographic grids to locate places on maps and images to answer questions</li> <li>c. Create and investigate geographic questions about Colorado in relation to other places</li> <li>d. Illustrate, using geographic tools, how places in Colorado have changed and developed over time due to human activity</li> <li>e. Describe similarities and differences between the physical geography of Colorado and its neighboring states</li> </ul> | <p>Maps, grids, biomes of Colorado, United States Regions</p> |                             |

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| <p>2. Connections within and across human and physical systems are developed</p> | <p><b>Students Can:</b></p> <ul style="list-style-type: none"><li>a. Describe how the physical environment provides opportunities for and places constraints on human activities</li><li>b. Explain how physical environments influenced and limited immigration into the state</li><li>c. Analyze how people use geographic factors in creating settlements and have adapted to and modified the local physical environment</li><li>d. Describe how places in Colorado are connected by movement of goods and services and technology</li></ul> | <p>Influence on activity, settlements, transportation, and industry</p> |  |
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### 3. Economics

|   | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>                                   | <b>Measuring Methods And Tools</b> |
|---|---|---|------------------------------------|
| 1. People respond to positive and negative incentives         | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Define positive and negative economic incentives</li> <li>b. Give examples of the kinds of goods and services produced in Colorado in different historical periods and their connection to economic incentives</li> <li>c. Explain how the productive resources - natural, human, and capital- of Colorado have influenced the types of goods produced and services provided</li> </ul> | Goods and services, natural human, and capital resources, positive and negative influences      |                                    |
| 2. The relationship between choice and opportunity cost (PFL) | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Define choice and opportunity cost</li> <li>b. Analyze different choices and their opportunity costs</li> <li>c. Give examples of the opportunity costs for individual decisions</li> <li>d. Identify risks that individuals face (PFL)</li> </ul>  | Risk taking, decision making process, current events, research, analyze data, Stock Market Game |                                    |

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|  | e. Analyze methods of limiting financial risk (PFL) |  |  |
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#### 4. Civics

|   | <b>Standards and Evidence Outcomes</b>  | <b>Montessori Materials, Instructional Methods, And Tools</b>   | <b>Measuring Methods And Tools</b> |
|---|---|---|------------------------------------|
| 1. Analyze and debate multiple perspectives on an issue | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Give examples of issues faced by the state and develop possible solutions</li> <li>b. Provide supportive arguments for both sides of a current public policy debate</li> <li>c. Discuss how various individuals and groups influence the way an issue affecting the state is viewed and resolved</li> </ul> | Analyze and Debate class discussions, research and reports, current events, critical thinking, active listening, problem solving, |                                    |
| 2. The origin, structure, and functions of the Colorado | <p><b>Students Can:</b></p> <ul style="list-style-type: none"> <li>a. Explain the origins, structure, and functions of the three branches of the</li> </ul>   | 3 branches, roles of elected officials, services and funding, interacts   |                                    |

|            |   |                                 |  |
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| government | state government and the relationships among them<br>b. Identify and explain a variety of roles leaders, citizens, and others play in state government<br>c. Identify and explain the services state government provides and how those services are funded<br>d. Explain the historical foundation and the events that led to the formation of the Colorado government<br>e. Describe how the decisions of the state government affect local government and interact with federal law | with federal law, constitution, |  |
|------------|---|---------------------------------|--|