# Correlation of *Core Knowledge® Sequence* & Colorado Grade Level Expectations

| **Core Knowledge® Content** (English-Grade 8) | **Colorado Grade Level Expectations** (Grade 8-Reading & Writing) |
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| **I. Writing, Grammar, and Usage** | |
| **A. Writing and Research** | |
| Teachers: Students should be given opportunities to write fiction, poetry, or drama, but instruction should emphasize repeated expository writing. Students should examine their work with attention to unity, coherence, and emphasis. Expository essays should have a main point and stick to it, and have a coherent structure, typically following the pattern of introduction, body, and conclusion. Paragraphs should have a unified focus, be developed with evidence, and examples, and have transitions between them. Essays should have appropriate tone and diction, as well as correct spelling and grammar in their final form. Standards for writing apply across the disciplines. | 8.2.A write stories, letters, and reports with greater detail and supporting material<br>8.2.B choose vocabulary and figures of speech that communicate clearly<br>8.2.C draft, revise, edit, and proofread for a legible final copy<br>8.2.D apply skills in analysis, synthesis, evaluation, and explanation to their writing and speaking<br>8.2.F write and speak in the content areas (for example, science, geography, history, literature), using the technical vocabulary of the subject accurately<br>8.3.F use possessives and correct paragraphing in writing |
| ▪ | 8.2.A write stories, letters, and reports with greater detail and supporting material<br>8.2.B choose vocabulary and figures of speech that communicate clearly<br>8.2.C draft, revise, edit, and proofread for a legible final copy<br>8.2.D apply skills in analysis, synthesis, evaluation, and explanation to their writing and speaking<br>8.2.F write and speak in the content areas (for example, science, geography, history, literature), using the technical vocabulary of the subject accurately |
| ▪ | 8.2.C draft, revise, edit, and proofread for a legible final copy<br>8.2.D apply skills in analysis, synthesis, evaluation, and explanation to their writing and speaking<br>8.2.E incorporate source materials into their speaking and writing (for example, interviews, news articles, encyclopedia information)<br>8.5.A use organizational features of printed text such as prefaces, afterwards, and appendices<br>8.5.C locate and select relevant information<br>8.5.E give credit for borrowed information in a bibliography |
| **B. Speaking and Listening** | |
| ▪ | 8.4.B use reading, writing, speaking, listening, and viewing to solve problems and answer questions<br>8.4.C make predictions, draw conclusions, and analyze what the read, hear, and view |
| ▪ | 8.2.D apply skills in analysis, synthesis, evaluation, and explanation to their writing and speaking<br>8.4.D recognize, express, and defend a point of view orally in an articulate manner and in writing |
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| **C. Grammar** | |
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| ▪ | 8.3.E punctuate and capitalize titles and direct quotations |
| ▪ | 8.3.C use modifiers, homonyms, and homophones in writing and speaking |
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| ▪ | 8.3.D use simple, compound, complex, and compound/complex sentences in writing and speaking |
| **D. Spelling** | |
| ▪ | 8.1.J apply knowledge of letter-sound correspondence, language structures, and context to recognize words<br>8.3.H expand spelling skills to include more complex words<br>8.3.I demonstrate use of conventional spelling in their published works<br>8.3.J use resources such as spell checkers, dictionaries, and charts to monitor their spelling and accuracy |

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| **E. Vocabulary** | |
| | 8.1.J apply knowledge of letter-sound correspondence, language structures, and context to recognize words<br>8.1.K locate meanings, pronunciations, and derivations of unfamiliar words using dictionaries, glossaries, and other sources<br>8.3.G use prefixes, root words, and suffixes correctly in writing and speaking |
| **II. Poetry** | |
| **A. Poems** | |
| ▪ | 8.1.A use a full range of strategies to comprehend technical writing, newspapers, magazines, poetry, short stories, plays, and novels<br>8.6.A read, respond to, and discuss a variety of novels, poetry, short stories, non-fiction, content-area and technical material, and plays |
| **B. Elements of Poetry** | |
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| ▪ | 8.6.D apply knowledge of literary techniques, including foreshadowing, metaphor, simile, personification, onomatopoeia, alliteration, and flashback, to understand text |
| **III. Fiction, Nonfiction, and Drama** | |
| **A. Short Stories** | |
| ▪ | 8.1.A use a full range of strategies to comprehend technical writing, newspapers, magazines, poetry, short stories, plays, and novels<br>8.1.B paraphrase, summarize, synthesize, and evaluate information from a variety of text and genres<br>8.1.C identify main idea and supporting details in a variety of texts and genres<br>8.1.D infer and predict using information in a variety of text and genres<br>8.1.E monitor own comprehension and make modifications when understanding breaks down by reading a portion, using reference aids, and searching for clues<br>8.1.G use background knowledge of subject and text structure to make complex predictions of content and purpose of text<br>8.1.H use text structure, such as cause and effect, to locate and recall information<br>8.1.I establish and adjust purposes for reading, such as reading to find out, to understand, to interpret, to enjoy, and to solve problems<br>8.4.A recognize an author's or speaker's point of view and purpose, separating fact from fiction<br>8.6.A read, respond to, and discuss a variety of novels, poetry, short stories, non-fiction, content-area and technical material, and plays<br>8.6.B read, respond to, and discuss literature that represents points of view from places, people, and events that are familiar and unfamiliar |
| **B. Novels** | |
| ▪ | 8.1.A use a full range of strategies to comprehend technical writing, newspapers, magazines, poetry, short stories, plays, and novels<br>8.1.B paraphrase, summarize, synthesize, and evaluate information from a variety of text and genres<br>8.1.C identify main idea and supporting details in a variety of texts and genres<br>8.1.D infer and predict using information in a variety of text and genres<br>8.1.E monitor own comprehension and make modifications when understanding breaks down by reading a portion, using reference aids, and searching for clues<br>8.1.G use background knowledge of subject and text structure to make complex predictions of content and purpose of text |

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| | 8.1.H use text structure, such as cause and effect, to locate and recall information<br>8.1.I establish and adjust purposes for reading, such as reading to find out, to understand, to interpret, to enjoy, and to solve problems<br>8.4.A recognize an author's or speaker's point of view and purpose, separating fact from fiction<br>8.6.A read, respond to, and discuss a variety of novels, poetry, short stories, non-fiction, content-area and technical material, and plays<br>8.6.B read, respond to, and discuss literature that represents points of view from places, people, and events that are familiar and unfamiliar |
| **C. Elements of Fiction** | |
| ▪ | 8.2.G recognize stylistic elements such as voice, tone, and style<br>8.4.E determine literary quality based on elements such as the author's use of vocabulary, character development, plot development, description of setting, and realism of dialogue<br>8.6.C use literature terminology accurately, including setting, character, conflict, plot, resolution, dialect, and point of view |
| **D. Essays and Speeches** | |
| ▪ | 8.1.A use a full range of strategies to comprehend technical writing, newspapers, magazines, poetry, short stories, plays, and novels<br>8.1.B paraphrase, summarize, synthesize, and evaluate information from a variety of text and genres<br>8.1.C identify main idea and supporting details in a variety of texts and genres<br>8.1.D infer and predict using information in a variety of text and genres<br>8.1.E monitor own comprehension and make modifications when understanding breaks down by reading a portion, using reference aids, and searching for clues<br>8.1.G use background knowledge of subject and text structure to make complex predictions of content and purpose of text<br>8.1.H use text structure, such as cause and effect, to locate and recall information<br>8.1.I establish and adjust purposes for reading, such as reading to find out, to understand, to interpret, to enjoy, and to solve problems<br>8.4.A recognize an author's or speaker's point of view and purpose, separating fact from fiction<br>8.6.A read, respond to, and discuss a variety of novels, poetry, short stories, non-fiction, content-area and technical material, and plays<br>8.6.B read, respond to, and discuss literature that represents points of view from places, people, and events that are familiar and unfamiliar |
| **E. Autobiography** | |
| ▪ | 8.1.A use a full range of strategies to comprehend technical writing, newspapers, magazines, poetry, short stories, plays, and novels<br>8.1.B paraphrase, summarize, synthesize, and evaluate information from a variety of text and genres<br>8.1.C identify main idea and supporting details in a variety of texts and genres<br>8.1.D infer and predict using information in a variety of text and genres<br>8.1.E monitor own comprehension and make modifications when understanding breaks down by reading a portion, using reference aids, and searching for clues<br>8.1.G use background knowledge of subject and text structure to make complex predictions of content and purpose of text<br>8.1.H use text structure, such as cause and effect, to locate and recall information<br>8.1.I establish and adjust purposes for reading, such as reading to find out, to understand, to interpret, to enjoy, and to solve problems |

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| | 8.4.A recognize an author's or speaker's point of view and purpose, separating fact from fiction<br>8.6.A read, respond to, and discuss a variety of novels, poetry, short stories, non-fiction, content-area and technical material, and plays<br>8.6.B read, respond to, and discuss literature that represents points of view from places, people, and events that are familiar and unfamiliar |
| **F. Drama** | |
| ▪ | 8.1.A use a full range of strategies to comprehend technical writing, newspapers, magazines, poetry, short stories, plays, and novels<br>8.1.B paraphrase, summarize, synthesize, and evaluate information from a variety of text and genres<br>8.1.C identify main idea and supporting details in a variety of texts and genres<br>8.1.D infer and predict using information in a variety of text and genres<br>8.1.E monitor own comprehension and make modifications when understanding breaks down by reading a portion, using reference aids, and searching for clues<br>8.1.G use background knowledge of subject and text structure to make complex predictions of content and purpose of text<br>8.1.H use text structure, such as cause and effect, to locate and recall information<br>8.1.I establish and adjust purposes for reading, such as reading to find out, to understand, to interpret, to enjoy, and to solve problems<br>8.4.A recognize an author's or speaker's point of view and purpose, separating fact from fiction<br>8.6.A read, respond to, and discuss a variety of novels, poetry, short stories, non-fiction, content-area and technical material, and plays<br>8.6.B read, respond to, and discuss literature that represents points of view from places, people, and events that are familiar and unfamiliar |
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| **G. Literary Terms** | |
| ▪ | 8.6.D apply knowledge of literary techniques, including foreshadowing, metaphor, simile, personification, onomatopoeia, alliteration, and flashback, to understand text |
| **IV. Foreign Phrases Commonly Used in English** | |
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| **Grade level or other area Grade Level Expectations are covered in the *Core Knowledge Sequence*** | **Grade Level Expectations not directly covered in the *Core Knowledge Sequence*, but can be covered in other areas** |
| Grade 6: English: Literary Terms | **8.**1.F confirm meaning of figurative, idiomatic, and technological language using context clues |
| Grade 5: Language Arts: Grammar and Usage | **8.**3.A identify the parts of speech such as nouns, pronouns, verbs, adverbs, adjectives, conjunctions, prepositions, and interjections |
| Grade 5: Language Arts: Grammar and Usage, Grade 6: English: Grammar and Usage, Grade 7: English: Grammar | **8.**3.B use correct pronoun case, regular and irregular noun and verb forms, and subject-verb agreement involving comparisons in writing and speaking |
| This can be covered in many other areas | **8.**5.B use organizational features of electronic information (for example, microfiche headings and numbering, headings for accessing nested information in hypertext media), and library and interlibrary catalog databases |
| This can be covered in many other areas | **8.5**.D use available technology to research and produce and end-product that is accurately documented |
| This can be covered in many other areas | **8.**6.E use new vocabulary from literature in other context |
| **Core Knowledge® Content** (History & Geography-Grade 8) | **Colorado Grade Level Expectations** (Grade 8-History, Geography, and Civics) |
| **I. The Decline of European Colonialism** | |
| **A. Breakup of the British Empire** | |

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| ▪ | GEO.8.1.2.A discuss the geography of the British colonial empire in light of its break-up in the 1950s, 1960s, and 1970s |
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| **B. Creation of People's Republic of China** | |
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| ▪ | GEO.8.1.2.B discuss from geographical point of view the emergence of the Communist Empire, including the creation of the People's Republic of China, the Korean and Vietnam Wars, the political alliances of the Cold War period |
| **II. The Cold War** | |
| **A. Origins of Cold War** | |
| ▪ | HIS.8.5.I study and compare the personal histories of Hitler, Mussolini, Tojo, DeGaulle, Churchill, Eisenhower, MacArthur, and others<br>GEO.8.1.2.B discuss from geographical point of view the emergence of the Communist Empire, including the creation of the People's Republic of China, the Korean and Vietnam Wars, the political alliances of the Cold War period |
| **B. The Korean War** | |
| ▪ | HIS.8.5.E describe how the relationships between the United States and external powers developed with the growth of the nation (build on wars addressed in seventh grade and apply sequence, causes, affects of World War II, Korean War and Vietnam)<br>HIS.8.5.F identify key leaders of World War I, World War II, Korean War, and Vietnam (World War I and II covered in Grade 7)<br>HIS.8.5.G explain specific ways in which events in each of the preceding wars affect us today (how was our nation changed by this war)<br>HIS.8.5.H locate and interview veterans of World War II, Korea, and Vietnam (prepare written reports of interviews)<br>GEO.8.1.2.B discuss from geographical point of view the emergence of the Communist Empire, including the creation of the People's Republic of China, the Korean and Vietnam Wars, the political alliances of the Cold War period |
| **C. America in the Cold War** | |
| ▪ | HIS.8.5.I study and compare the personal histories of Hitler, Mussolini, Tojo, DeGaulle, Churchill, Eisenhower, MacArthur, and others<br>HIS.8.6.C compare the non-violent "passive resistance" movements of Martin Luther King, Jr. and Mahatma Gandhi with political change forced through violence (e.g. Castro/Cuba, Mao Tse-tung/China, American Revolution, the War Between the States, etc.)<br>GEO.8.1.2.B discuss from geographical point of view the emergence of the Communist Empire, including the creation of the People's Republic of China, the Korean and Vietnam Wars, the political alliances of the Cold War period |
| **III. The Civil Rights Movement** | |
| ▪ | GEO.8.1.2.C discuss the Civil Rights Movement in the U.S. in connection with the geographical "hot spots" |
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| ▪ | HIS.8.6.C compare the non-violent "passive resistance" movements of Martin Luther King, Jr. and Mahatma Gandhi with political change forced through violence (e.g. Castro/Cuba, Mao Tse-tung/China, American Revolution, the War Between the States, etc.) |
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| **IV. The Vietnam War and the Rise of Social Activism** | |
| **A. The Vietnam War** | |
| ▪ | HIS.8.5.E describe how the relationships between the United States and external powers developed with the growth of the nation (build on wars addressed in seventh grade and apply sequence, causes, affects of World War II, Korean War and Vietnam)<br>HIS.8.5.F identify key leaders of World War I, World War II, Korean War, and Vietnam (World War I and II covered in Grade 7)<br>HIS.8.5.G explain specific ways in which events in each of the preceding wars affect us today (how was our nation changed by this war)<br>HIS.8.5.H locate and interview veterans of World War II, Korea, and Vietnam (prepare written reports of interviews)<br>GEO.8.1.2.B discuss from geographical point of view the emergence of the Communist Empire, including the creation of the People's Republic of China, the Korean and Vietnam Wars, the political alliances of the Cold War period |
| **B. Social and Environmental Activism** | |
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| **V. The Middle East and Oil Politics** | |
| **A. History** | |
| ▪ | GEO.5-8.6.1.D explain how competition for resources causes conflict |
| **B. Geography of the Middle East** | |
| ▪ | GEO.8.1.2.D demonstrate knowledge of the relationship between the geography/resources of the Middle East and "Oil Politics"<br>CIV.8.3.2 Study the history of U.S. policy in the Middle East and analyze actions taken over time to protect civil rights |
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| **VI. The End of the Cold War: The Expansion of Democracy and Continuing Challenges** | |
| **A. The American Policy of Détente** | |
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| **B. Breakup of the USSR** | |
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| ▪ | GEO.8.1.2.E describe, from a geographical point of view, the break-up of the Soviet Union and the realignment of countries after the end of the Cold War |
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| **C. China Under Communism** | |
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| **D. Contemporary Europe** | |
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| **E. The End of Apartheid in South Africa** | |

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| ▪ | GEO.8.1.2.F discuss conflicts in Africa and the end of Apartheid in Africa |
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| **VII. Civics: The Constitution—Principles and Structure of American Democracy** | |
| ▪ | CIV.8.1.1 Produce a bulletin board of articles about Colorado legislature, Colorado Governor, or the Colorado Supreme Court showing which government function is being exercised<br>CIV.8.1.2 Analyze and present two newspaper articles about the actions of the state government<br>CIV.8.1.3 Defend a position on a current issue involving a constitutional protection of individual rights<br>CIV.8.1.4 Analyze the process for expanding civil rights to more people throughout U.S. history and into the future<br>CIV.8.1.5 Compare the effects on a country of a low voter turnout vs. a higher voter turnout<br>CIV.8.2.1 Compare the advantages of a bicameral (two house) state legislature with a unicameral (one house) state legislature<br>CIV.8.2.2 Identify five decisions which need to be agreed upon by the local, state, and federal governments for the construction of a new interstate highway<br>CIV.8.2.3 Apply the Colorado Constitution to the *Gideon v. Wainwright* decision<br>CIV.8.2.4 Explain how immigration and changing demographics might affect civic involvements in the future |
| **VIII. Geography of Canada and Mexico** | |
| ▪ | GEO.8.1.2.G demonstrate expanded knowledge of the geography of Canada and Mexico in light of the North American Free Trade Agreement (NAFTA) |
| **Grade level or other area Grade Level Expectations are covered in the *Core Knowledge Sequence*** | **Grade Level Expectations not directly covered in the *Core Knowledge Sequence*, but can be covered in other areas** |
| This can be covered and reviewed from many previous and future History units | HIS.8.1.A construct various time lines of American history during the 19th century, highlighting landmark dates, technological changes, major political and military events |
| Grade 6: World History: Industrialism American History: Immigration, Industrialization, and Urbanization | HIS.8.1.B demonstrate a chronological understanding of the study of the major topics in the study *Expanding Nation: The North and South* (1815-1850) including geographic expansion; market expansion, early industrialization (industrial revolution; the plantation system, growth of cities, the immigrants and their experiences) |
| Grade 5: American History: Westward Expansion Before the Civil War | HIS.8.1.C demonstrate a chronological understanding of the major topics in the study *Expanding Nation: Westward Movement* (1815-1850) including the Louisiana Purchase, Indian policy and treaties; Manifest Destiny; the significance of the War with Mexico; interactions of white and black Americans, Native Americans, Asians, and Mexicans, and the social, economic, and political impact of the West on the growing nation |
| Grade 5: American History: The Civil War: Causes, Conflicts, Consequences | HIS.8.1.D demonstrate a chronological understanding of the Civil War and Reconstruction (1850-1877) including the slave system in the Old South and its defenders and opponents; the causes, conduct, and course of the war and the failures of Reconstruction |
| This can be covered and reviewed from many previous and future History units | HIS.8.1.E trace patterns of change and continuity in the history of the United States and compare the laws of various people of various cultures from long ago until 21st century America |
| This can be covered in many of the History units | HIS.8.2.A identify, analyze, and interpret primary sources (artifacts, diaries, letters, photographs, art, documents, and newspapers) and contemporary media (computer information systems) and make generalizations about events and life in the United States history in the 19th century |
| This can be covered in many of the History units | HIS.8.2.B recognize and explain how different points of view have been influenced by nationalism, race, religion, and ethnicity |
| This can be covered in many of the History units | HIS.8.2.C distinguish fact from fiction by examining documentary sources |
| This can be covered in many of the History units | HIS.8.3.A describe the common traits and characteristics that unite the United States as a nation and as a society (note and describe those cultural characteristics and beliefs which can divide us if we permit it) |

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| | This can be covered in many of the History units | HIS.8.3.B describe how the social roles and the characteristics of social organization have both changed and endured in the United States throughout history (e.g. family structures, English language, community structures, etc.) |
| | Grade 6: World History: Industrialism, Capitalism, and Socialism and American History: Immigration, Industrialization, and Urbanization and Reform | HIS.8.4.A explain and analyze the American public's response to industrialization and urbanization, with emphasis on "muckraking" literature and the rise of the Progressive Movement, women's suffrage, and child labor laws, reaction to working conditions, and the rise of organized labor |
| | This can be covered in many other areas | HIS.8.4.B explain how the economy of the Western United States has historically depended upon natural resources and how this has affected western states, especially Colorado |
| | This can be covered in many other areas | HIS.8.4.C explain how economic factors influenced historical events in the United States and in various regions of the world (e.g. Colorado's "boom and bust" economy) |
| | Grade 5: American History: The Civil War: Causes, Conflicts, Consequences | HIS.8.5.A identify the causes, key events and effects of the Civil War and Reconstruction, with emphasis on the events leading to secession and war; and the impact of Reconstruction on the South |
| | Grade 5: American History: The Civil War: Causes, Conflicts, Consequences | HIS.8.5.B identify leaders on both sides of the war including Abraham Lincoln, Ulysses S. Grant, Jefferson Davis, Robert E. Lee, Frederick Douglass, and William Lloyd Garrison, etc. |
| | This can be covered in many other areas | HIS.8.5.C describe how forms of involuntary servitude have been used to maintain and expand political power throughout history (e.g. slavery and serfdom), discuss 21st century Sudan and other slave nations of today |
| | Grade 5: American History: Westward Expansion After the Civil War and Grade 6: World History: Industrialism, Capitalism, and Socialism and American History: Immigration, Industrialization, and Urbanization and Reform | HIS.8.5.D explain how, following the Civil War, massive immigration, combined with the rise of big business, heavy industry, and mechanized farming transformed American life |
| | This can be covered in many of the History units | HIS.8.6.A give examples of the unique art forms that characterize the various ethnic groups in the United States and their religious beliefs and philosophical ideas throughout history |
| | Grade 5: Language Arts: Poetry (Emerson and Longfellow) and Fiction and Drama (Twain and Alcott), Grade 6: Language Arts: Poetry (Longfellow), Grade 8: Language Arts: Fiction, Nonfiction, and Drama (Hawthorne, Crane) | HIS.8.6.B examine the common themes in American literature, using writings about and by Emerson, Thoreau, Melville, Alcott, Hawthorne, Longfellow, Twain, Crane, and others |
| | This can be covered in many other areas | GEO.5-8.1.3.A trace and/or draw custom maps featuring information according to the desired use of the maps |
| | This can be covered in many other areas | GEO.5-8.1.3.B analyze maps, in order to discover and summarize information about geographical areas |
| | This can be covered in many other areas | GEO.5-8.1.3.C organize information obtained through the reading of maps in graphs, diagrams, and other visual aids, in order to illustrate specific demographic, physical and other topics |
| | This can be covered in many other areas | GEO.5-8.1.3.D gather field information and record it on custom maps |
| | This can be covered in many other areas | GEO.5-8.1.3.E trace on maps the spread of human migrations, cultures, languages, religions, diseases |
| | This can be covered in many other areas | GEO.5-8.1.3.F discover patterns of human habitation and activities through the study of maps |
| | This can be covered in many other areas | GEO.5-8.1.3.G discuss the places of the world that America depends on for imported resources and goods |
| | This can be covered in many other areas | GEO.5-8.2.1.A describe and compare the physical characteristics of places, using a variety of visual materials and data sources |
| | This can be covered in many other areas | GEO.5-8.2.1.B describe and compare human characteristics of places |
| | This can be covered in many other areas | GEO.5-8.2.1.C examine and explain human impact on the landscape/environment |
| | This can be covered in many other areas | GEO.5-8.2.1.D identify and analyze how technology shapes the physical and human characteristics of places |
| | This can be covered in many of the History units | GEO.5-8.2.2.A identify and describe regions in terms of physical and human characteristics |
| | This can be covered in many of the History units | GEO.5-8.2.2.B explain how regions are connected through cultural ties, trade, language, resources, through the use of maps |
| | This can be covered in many of the History units | GEO.5-8.2.2.C explain how regions change over space and time |
| | This can be covered in many of the History units | GEO.5-8.2.3.A gather and compare information on how people of different backgrounds view the same place or region |
| | This can be covered in many of the History units | GEO.5-8.2.3.B compare ways in which people of different cultural origins build out and name places in the same regions |
| | Grade 6: American History: Immigration, Industrialization, | GEO.5-8.2.3.C explain why immigrants to the United States hold on to customs from their home countries |

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| | Urbanization | |
| | This can be covered in many of the History units | GEO.5-8.3.1.A understand and describe how the environment can affect human settlement and vice versa |
| | This can be covered in many of the History units and Grade 3: Science: Ecology | GEO.5-8.3.1.B identify the elements of ecosystems and explain how they are related to life within |
| | This can be covered in many of the History units | GEO.5-8.3.1.C research and explain how physical processes influence ecosystems |
| | This can be covered in many of the History units | GEO.5-8.3.1.D explain the distribution of types of ecosystems and their impact on human populations |
| | This can be covered in many of the History units | GEO.5-8.3.1.E analyze the importance of distance in human interaction |
| | This can be covered in many other areas | GEO.5-8.3.2.A identify the physical components of the Earth's atmosphere, lithosphere, hydrosphere, and biosphere (e.g. climates, land forms, bodies of water, ecosystems) |
| | This can be covered in many other areas and Grade 4: Geology: The Earth and Its Changes | GEO.5-8.3.2.B understand how natural processes create or change land forms, and give actual geographic locations as examples |
| | This can be covered in many other areas | GEO.5-8.3.2.C define renewable and non-renewable Earth resources |
| | This can be covered in many other areas and Grade 4: Geology: The Earth and Its Changes | GEO.5-8.3.2.D predict the consequences of physical processes on the Earth's surface and weather conditions |
| | Grades 6 and 7: History | GEO.5-8.4.1.A describe and discuss the reasons for human migrations (e.g. famine, slave trade, wars, persecution) after studying related literature |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.1.B create graphs depicting population numbers and distribution |
| | This can be covered in many of the History units | GEO.5-8.4.1.C describe the influence of population on environment |
| | This can be covered in many of the History units | GEO.5-8.4.1.D analyze the characteristics of a certain population |
| | This can be covered in many of the History units | GEO.5-8.4.2.A use interviews with real people to define cultural change |
| | This can be covered in many of the History units | GEO.5-8.4.2.B differentiate among different cultures in Colorado |
| | This can be covered in many of the History units | GEO.5-8.4.2.C differentiate among different cultures in other parts of the world |
| | This can be covered in many of the History units | GEO.5-8.4.2.D use cultural clues/artifacts to identify historical migrations |
| | This can be covered in many of the History units | GEO.5-8.4.2.E analyze the impact of various cultures on physical elements of the Earth |
| | This can be covered in many of the History units | GEO.5-8.4.2.F use a variety of maps to research information regarding the location and movements of various cultures |
| | This can be covered in many of the History units | GEO.5-8.4.2.G analyze geographical factors that have generated cultural change |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.3.A identify economic activities within a region and examine the reasons for their locations |
| | This can be covered in many of the History units | GEO.5-8.4.3.B explain the need for trade among regions, based on local availability of resources and goods |
| | This can be covered in many of the History units | GEO.5-8.4.3.C construct maps to illustrate historical patterns of human origins and activities |
| | This can be covered in many of the History units | GEO.5-8.4.3.D compile examples of cultural and economic reasons for changes in human societies |
| | This can be covered in many of the History units | GEO.5-8.4.3.E analyze systems to deliver services and goods |
| | This can be covered in many of the History units | GEO.5-8.4.3.F discuss world trade and explain the systems that support it |
| | This can be covered in many of the History units | GEO.5-8.4.4.A use maps to compare and contrast historic factors that have changed land use in a region |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.4.B deduct geographical reasons for human settlements in specific areas |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.4.C classify cities according to their human and environmental characteristics |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.4.D compare patterns of land use and human settlement in various regions |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.4.E classify cities according to their physical characteristics |
| | Grade 7: History: Geography of the United States | GEO.5-8.4.4.F analyze the process of the creation of a megalopolis |
| | This can be covered in many of the History units | GEO.5-8.4.5.A describe political, social, and economic divisions throughout early American history |
| | This can be covered in many of the History units | GEO.5-8.4.5.B understand and describe how people divide the Earth's surface into different types of territorial units |
| | This can be covered in many of the History units | GEO.5-8.4.5.C analyze the reasons for divisions and cooperation among people, in terms of geography |
| | Grade 7: Science: Evolution | GEO.5-8.5.1.A examine the factors that have caused the disappearance of an animal or plant species |
| | This can be covered in many other areas | GEO.5-8.5.1.B understand the interrelatedness of environmental systems and its impact on life (human and other) |
| | Grade 7: Science: Evolution | GEO.5-8.5.1.C describe ways in which humans adapt to physical changes in the Earth's environments |
| | Grade 3: Science: Ecology | GEO.5-8.5.1.D explain how environmental changes in one place affect other places (acid rain, pollution, pesticides, etc.) |

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| Grade 7: Science: Evolution | GEO.5-8.5.1.E predict new ways for humans to adapt to their environments |
| This can be covered in many other areas | GEO.5-8.5.1.F use maps to track the influence of environmental changes from one place to another |
| This can be covered in many other areas | GEO.5-8.5.2.A understand how population growth affects air, land, and water quality, and how they impact the physical environment |
| This can be covered in many other areas | GEO.5-8.5.2.B explore the positive and negative effects of humans on the environment |
| This can be covered in many other areas | GEO.5-8.5.2.C explain how people's lives are influenced by population movements |
| This can be covered in many other areas | GEO.5-8.5.3.A track specific resources' distribution throughout the world |
| This can be covered in many other areas | GEO.5-8.5.3.B compare countries and their development based on their available resources |
| This can be covered in many other areas | GEO.5-8.5.3.C examine current impact of resource use |
| This can be covered in many other areas | GEO.5-8.5.3.D predict the changes to a region with better management and resource use |
| This can be covered in many other areas | GEO.5-8.5.3.E examine and report how energy resources in different countries are used |
| Grade 7: History: Geography of the United States | GEO.5-8.6.1.A identify the various geographic aspects of a region |
| This can be covered in many other areas | GEO.5-8.6.1.B analyze the impact human migration has had on regions and countries |
| Grade 7: History: Geography of the United States | GEO.5-8.6.1.C examine how various regions/countries deal with social, economic, and political changes |
| Grade 7: History: Geography of the United States | GEO.5-8.6.2.A examine various social, political, and economic regions and see how they are different from past to present |
| This can be covered in many other areas | GEO.5-8.6.2.B show how environments and resources have affected various areas from past to present |
| This can be covered in many other areas | GEO.5-8.6.2.C predict the future of regions based on available resources and human interaction |
| This can be covered in many other areas | GEO.5-8.6.2.D explain and discuss the need for responsible environmental management practices |
| This can be covered in many other areas | CIV.8.3.1 Discuss and critique U.S> strategies for containing terrorism in the U.S. and around the world |
| This can be covered in many other areas | CIV.8.3.3 Describe how an NGO (non-governmental agency) seeks to help with an international problem – e.g.: International Red Cross, others |
| Grade 5: American History: The Civil War | CIV.8.4.1 Write a paragraph about a good public servant/citizen from the Civil War era – e.g.: a nurse on the battleground, a war veteran from the North or South |
| This can be covered in many other areas | CIV.8.4.2 Defend a position in favor of, or in opposition to, establishing a halfway house for rehabilitating felons in their neighborhood |
| This can be covered in many other areas | CIV.8.4.3 Write a letter to the hypothetical editor of a local newspaper defending or opposing the right of the First Christian Church to rent your school on Sundays |
| **Core Knowledge® Content** (Visual Arts-Grade 8) | **Colorado Grade Level Expectations** (Grade 8-Visual Arts) |
| **I. Art History: Periods and Schools** | |
| **A. Painting Since World War II** | |
| ▪ | 7/8.3 Using their own artwork or works of others, write a statement which explains how the artist's feelings are portrayed visually. (S=1)<br>7/8.4 Generate questions and possible answers to questions about works of art. (S=1, S=5)<br>7/8.5 Describe ways that social and cultural beliefs can affect responses to works of art. (S=1, S=5)<br>7/8.7 Identify how the belief systems of a viewer may influence the interpretation of works of art. (S=1)<br>7/8.9 Recognize and apply the Principles of Design: Contrast (variation of elements), Rhythm (irregular, regular, random, alternating, progressive, flowing), Movement (center of interested, illusion of action), Repetition (kinetic), Pattern (simple and complex), Proportion (human, realistic, size relationships, exaggeration, golden mean, abstraction), Balance (asymmetry and symmetry, radial, formal and informal), Emphasis (focal point, placement, framing, simple and complex, isolation, rule of thirds), Unity (continuity)<br>7/8.22 Participate in a debate regarding the purposes, values, and meaning in works of art. (S=5) |
| **B. Photography** | |
| ▪ | 7/8.3 Using their own artwork or works of others, write a statement which explains how the artist's feelings are |

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| | portrayed visually. (S=1)<br>7/8.4 Generate questions and possible answers to questions about works of art. (S=1, S=5)<br>7/8.5 Describe ways that social and cultural beliefs can affect responses to works of art. (S=1, S=5)<br>7/8.7 Identify how the belief systems of a viewer may influence the interpretation of works of art. (S=1)<br>7/8.9 Recognize and apply the Principles of Design: Contrast (variation of elements), Rhythm (irregular, regular, random, alternating, progressive, flowing), Movement (center of interested, illusion of action), Repetition (kinetic), Pattern (simple and complex), Proportion (human, realistic, size relationships, exaggeration, golden mean, abstraction), Balance (asymmetry and symmetry, radial, formal and informal), Emphasis (focal point, placement, framing, simple and complex, isolation, rule of thirds), Unity (continuity)<br>7/8.22 Participate in a debate regarding the purposes, values, and meaning in works of art. (S=5) |
| **C. 20th Century Sculpture** | |
| ▪ | 7/8.3 Using their own artwork or works of others, write a statement which explains how the artist's feelings are portrayed visually. (S=1)<br>7/8.4 Generate questions and possible answers to questions about works of art. (S=1, S=5)<br>7/8.5 Describe ways that social and cultural beliefs can affect responses to works of art. (S=1, S=5)<br>7/8.7 Identify how the belief systems of a viewer may influence the interpretation of works of art. (S=1)<br>7/8.9 Recognize and apply the Principles of Design: Contrast (variation of elements), Rhythm (irregular, regular, random, alternating, progressive, flowing), Movement (center of interested, illusion of action), Repetition (kinetic), Pattern (simple and complex), Proportion (human, realistic, size relationships, exaggeration, golden mean, abstraction), Balance (asymmetry and symmetry, radial, formal and informal), Emphasis (focal point, placement, framing, simple and complex, isolation, rule of thirds), Unity (continuity)<br>7/8.22 Participate in a debate regarding the purposes, values, and meaning in works of art. (S=5) |
| **II. Architecture Since the Industrial Revolution** | |
| ▪ | 7/8.3 Using their own artwork or works of others, write a statement which explains how the artist's feelings are portrayed visually. (S=1)<br>7/8.4 Generate questions and possible answers to questions about works of art. (S=1, S=5)<br>7/8.5 Describe ways that social and cultural beliefs can affect responses to works of art. (S=1, S=5)<br>7/8.7 Identify how the belief systems of a viewer may influence the interpretation of works of art. (S=1)<br>7/8.9 Recognize and apply the Principles of Design: Contrast (variation of elements), Rhythm (irregular, regular, random, alternating, progressive, flowing), Movement (center of interested, illusion of action), Repetition (kinetic), Pattern (simple and complex), Proportion (human, realistic, size relationships, exaggeration, golden mean, abstraction), Balance (asymmetry and symmetry, radial, formal and informal), Emphasis (focal point, placement, framing, simple and complex, isolation, rule of thirds), Unity (continuity)<br>7/8.22 Participate in a debate regarding the purposes, values, and meaning in works of art. (S=5) |
| **Grade level or other area Grade Level Expectations are covered in the *Core Knowledge Sequence*** | **Grade Level Expectations not directly covered in the *Core Knowledge Sequence*, but can be covered in other areas** |
| This can be covered in many other areas | 7/8.1 Will maintain a sketchbook journal of ideas and writings to use as a resource and planning tool. (S=1) |
| This can be covered in many other areas | 7/8.2 Develop ideas for works of art by conducting research and making preliminary sketches or models. (S=1) |
| This can be covered in many other areas | 7/8.6 Identify the role of the artist in mass media. (S=1, S=3) |
| This can be covered in many other areas | 7/8.8 Use brainstorming as a means to generate ideas for works of art. (S=1) |
| This can be covered in many other areas | 7/8.10.A Recognize and apply the Elements of Art: Lines (Types-mechanical and lyrical; Concepts-expressive, implied, leading) |
| This can be covered in many other areas | 7/8.10.B Recognize and apply the Elements of Art: Shape (Types-geometric-ellipse-organic-biomorphic; Concepts-abstract, expressive, symbolic, dynamic) |

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| This can be covered in many other areas | 7/8.10.C Recognize and apply the Elements of Art: Form (Types-actual, illusionary) |
| This can be covered in many other areas | 7/8.10.D Recognize and apply the Elements of Art: Texture |
| This can be covered in many other areas | 7/8.10.E Recognize and apply the Elements of Art: Space |
| This can be covered in many other areas | 7/8.1.F Recognize and apply the Elements of Art: Color (Concepts-advanced and recede, psychological, symbolic, realistic) |
| This can be covered in many other areas | 7/8.10.G Recognize and apply the Elements of Art: Value (Concepts-gradation, high/low key, reflected) |
| This can be covered in many other areas | 7/8.11 Using a variety of materials (e.g. charcoal, oil pastels, paintbrush), create a figurative drawing using highlights. (S=3) |
| This can be covered in many other areas | 7/8.12 Create a sculpture piece using a subtractive technique. (S=3) |
| This can be covered in many other areas | 7/8.13 Utilizing colored inks, create a linoleum or woodblock print. (S=3) |
| This can be covered in many other areas | 7/8.14 Using two point perspective, create an architectural scene. (S=3) |
| This can be covered in many other areas | 7/8.15 Use a computer and peripherals to manipulate and create artwork. (S=3) |
| This can be covered in many other areas | 7/8.16 Follow directions for the safe use of tools, materials and procedures. Wear appropriate protection such as smocks, safety glass, gloves, and hair ties when necessary. When appropriate, pass a safety assessment. (S=3) |
| This can be covered in many other areas | 7/8.17 Examine and discuss artwork created as a social comment or to protest social conditions. (S=4) |
| This can be covered in many other areas | 7/8.18 Identify major works of art by diverse groups of people (e.g. women, ethnic cultures or outsider art). (S=4) |
| This can be covered in many other areas | 7/8.19 Use selected criteria as the basis of making judgments about works of art. (S=4) |
| This can be covered in many other areas | 7/8.20 Predict outcomes if the elements of design or the materials were altered in a particular work of art. (S=5) |
| This can be covered in many other areas | 7/8.21 Apply the four steps of art criticism: 1) describe, 2) analyze the work in terms of elements and design principles, 3) interpret the work in terms of ideas and emotions, and 4) judge the work as to its success both technically and in either communicating an idea, and emotion, or fulfilling a practical purpose. (S=5) |
| **Core Knowledge® Content** (Music-Grade 8) | **Colorado Grade Level Expectations** (Grade 8-Music) |
| **I. Elements of Music** | |
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| ▪ | 8.2 identify appropriate key signatures in the music performed (S1, S2)<br>8.3 read, notate, and perform rhythmic and melodic patterns adding dotted rhythms, mixed meter, chromatics, and other key signatures to those already learned (S1, S2)<br>8.6 read notes in the appropriate clef for the instrument being played (S2) |
| **II. Non-Western Music** | |
| ▪ | 8.7 listen to selected music with varied instrumentation and voicing, and discuss textures and timbres (S4)<br>8.8 listen to a musical selection and explain how the composer used specified musical elements (S4, S5) |
| **III. Classical Music: Nationalists and Moderns** | |
| **A. Music and National Identity** | |
| ▪ | 8.5 sing or play syncopation in folk, classical, or jazz music (S1, S2, S4)<br>8.7 listen to selected music with varied instrumentation and voicing, and discuss textures and timbres (S4)<br>8.8 listen to a musical selection and explain how the composer used specified musical elements (S4, S5) |
| **B. Modern Music** | |
| ▪ | 8.5 sing or play syncopation in folk, classical, or jazz music (S1, S2, S4) |

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| | 8.7 listen to selected music with varied instrumentation and voicing, and discuss textures and timbres (S4)<br>8.8 listen to a musical selection and explain how the composer used specified musical elements (S4, S5) |
| **IV. Vocal Music** | |
| **A. Opera** | |
| ▪ | |
| ▪ | 8.7 listen to selected music with varied instrumentation and voicing, and discuss textures and timbres (S4)<br>8.8 listen to a musical selection and explain how the composer used specified musical elements (S4, S5) |
| **B. American Musical Theater** | |
| ▪ | 8.7 listen to selected music with varied instrumentation and voicing, and discuss textures and timbres (S4)<br>8.8 listen to a musical selection and explain how the composer used specified musical elements (S4, S5)<br>8.9 discuss the music from a live performance, film or video performance as it relates to today's youth culture (S4, S5) |
| ▪ | 8.7 listen to selected music with varied instrumentation and voicing, and discuss textures and timbres (S4)<br>8.8 listen to a musical selection and explain how the composer used specified musical elements (S4, S5)<br>8.9 discuss the music from a live performance, film or video performance as it relates to today's youth culture (S4, S5) |
| **Grade level or other area Grade Level Expectations are covered in the *Core Knowledge Sequence*** | **Grade Level Expectations not directly covered in the *Core Knowledge Sequence*, but can be covered in other areas** |
| This can be covered in many areas | 8.1 sing or play, in two or more parts, with musical accuracy (S1) |
| This can be covered in many areas | 8.4 organize, notate, and perform a rhythmic composition which accurately conforms to the natural stress of a prose selection (S1, S2, S3) |
| This can be covered in many areas | 8.10 discuss audience behavior and listening criteria for a live performance (S5) |
| **Core Knowledge® Content** (Mathematics-Grade 8) | **Colorado Grade Level Expectations** (Grade 8-Mathematics) |
| **I. Algebra** | |
| **A. Properties of the Real Numbers** | |
| ▪ | |
| **B. Relations, Functions, and Graphs (Two Variables)** | |
| ▪ | |
| **C. Linear Equations and Functions (Two Variables)** | |
| ▪ | 8.2.4.A graph discrete linear and nonlinear functions<br>8.2.4.B graph and distinguish between continuous linear and nonlinear functions, such as, $y = 3x + 2$, $y = x^2$, and $y = x^3$, either by creating a table or using technology |
| ▪ | 8.2.3.B in a linear function, explain the meaning of slope as a rate of change |
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| ▪ | 8.2.3.C identify independent and dependent variables<br>8.2.5.C solve linear equations involving integers with variables and constants on both sides of the equation |
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| ▪ | 8.2.5.B using formal methods, solve one-step linear equations involving rational numbers |
| **D. Arithmetic of Rational Expression** | |
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| **E. Quadratic Equations and Functions** | |
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| **II. Geometry** | |
| **A. Analytic Geometry** | |
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| **B. Introduction to Trigonometry** | |
| ▪ | |
| **C. Triangles and Proofs** | |
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| ▪ | 8.5.4.C develop and use the Pythagorean Theorem |
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| | **Grade level or other area Grade Level Expectations are covered in the *Core Knowledge Sequence*** | **Grade Level Expectations not directly covered in the *Core Knowledge Sequence*, but can be covered in other areas** |
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| | This can be covered in many other areas | 8.1.1.A locate rational numbers and commonly-used irrational numbers on the number line (for example, -7/2, -2.48, 0, 15/16) |
| | This can be covered in many other areas | 8.1.1.B demonstrate the equivalence of fractions, terminating decimals, and percents of positive and negative rational numbers |
| | This can be covered in many other areas | 8.1.1.C distinguish between the sets of rational and irrational numbers |
| | This can be covered in many other areas | 8.1.1.D determine the two consecutive whole numbers between which the square root of a whole number lies (for example, 72 lies between 8 and 9) |
| | This can be covered in many other areas | 8.1.1.E pictorially, demonstrate the meaning of commonly-used irrational numbers |
| | This can be covered in many other areas | 8.1.2.A read, write, and order rational numbers and commonly-used irrational numbers |
| | This can be covered in many other areas | 8.1.2.B compare rational numbers and commonly-used irrational numbers using the symbols =, <, > |
| | Grade 7: Mathematics: Pre-Algebra | 8.1.3.A write and use appropriately negative powers of ten (for example, 1/102 = 10-2) |
| | Grade 7: Mathematics: Pre-Algebra | 8.1.3.B write rational numbers in expanded form with negative powers of ten (for example, 579.24 = 5 x 100 + 7 x 10 + 9 x 1 + 4 x 10-1 + 2 x 10-2) |
| | Grade 7: Mathematics: Pre-Algebra | 8.1.3.C write very small rational numbers in scientific notation (for example, .00036 = 3.6 x 10-4) |
| | Grade 7: Mathematics: Pre-Algebra | 8.1.3.D demonstrate the meaning of an, where 'a' is any rational number and 'n' is a counting number |
| | This can be covered in many other areas | 8.1.4.A apply proportional reasoning to solve problems |
| | Grade 7: Mathematics: Pre-Algebra | 8.1.5.A demonstrate properties for rational numbers, including closure |
| | This can be covered in many other areas | 8.1.6.A estimate, using appropriate techniques, determine, and, then, justify the reasonableness of solutions to problems involving positive and negative rational numbers |
| | This can be covered in many other areas | 8.2.1.A represent, describe, and analyze patterns with rational numbers |
| | This can be covered in many other areas | 8.2.2.A solve problems from patterns involving rational numbers using tables, graphs, and rules |
| | Grade 7: Mathematics: Pre-Algebra | 8.2.3.A in any functional relationship involving rational numbers, describe how a change in one quantity affects the other |
| | This can be covered in many other areas | 8.2.5.A translate written expressions or equations to algebraic expressions or equations, and vice versa |
| | Grade 7: Mathematics: Probability and Statistics | 8.3.1.A organize and display data using appropriate graphs, such as line, bar, circle (using ratios to determine degrees and draw with protractors), dot plots, frequency tables, stem-and-leaf, histograms, scatter plots, box-and-whiskers) |
| | Grades 4, 5, and 6: Mathematics: Probability and Statistics | 8.3.1.B read, interpret, and draw conclusions from various displays of data |

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| | Grade 6: Mathematics: Probability and Statistics | 8.3.2.A state the purpose of using measures of central tendency and variability with data sets |
| | Grade 6: Mathematics: Probability and Statistics | 8.3.2.B create sets of data with the same mean and different ranges and compare the variability |
| | Grade 6: Mathematics: Probability and Statistics | 8.3.2.C in a problem-solving situation, select the most appropriate display and measure of central tendency to solve the problem |
| | Grade 6: Mathematics: Ratio, Percent, and Proportion | 8.3.3.A determine the improper computation of percent increase or decrease |
| | This can be covered in many other areas | 8.3.3.B recognize a misleading display of data which arises from area and volume models |
| | This can be covered in many other areas | 8.3.4.A display, analyze, and draw conclusions from a given set of data or student generated set of data |
| | Grades 6 and 7: Mathematics: Probability and Statistics | 8.3.5.A perform experiments of simple independent and dependent events to estimate probability |
| | Grade 6: Mathematics: Probability and Statistics | 8.3.5.B perform experiments to estimate probability of complementary events |
| | Grade 7: Mathematics: Probability and Statistics | 8.3.6.A determine the probability of independent, dependent, and complementary events with replacement and without replacement |
| | This can be covered in many other areas | 8.3.6.B analyze games of chance to determine whether they are fair or unfair; if unfair, rewrite the rules of the game to make it fair |
| | This can be covered in many other areas | 8.3.7.A determine the number of outcomes of independent compound events by using the fundamental counting principle (for example, if one choice occurs in “m” ways and the second choice occurs in “n” ways, then the number of ways for them to occur together in m x n) |
| | This can be covered in many other areas | 8.3.7.B use Pascal’s triangle to determine how many and which outcomes occur for independent compound events with exactly two outcomes |
| | Grade 7: Mathematics: Geometry | 8.4.1.A using a straight edge and a compass, paper folding, or computer software application, demonstrate the geometric constructions of a perpendicular to a point on a line segment, a perpendicular to a line from a point not on the line segment, and triangle congruence of Side-Side-Side, Side-Angle-Side, and Angle-Side-Angle |
| | Grade 7: Mathematics: Geometry | 8.4.1.B build models of three-dimensional oblique solids |
| | Grade 7: Mathematics: Geometry | 8.4.1.C given a three-dimensional model built with cubes, use isometric paper to draw the isometric drawing (that is, a drawing that shows the corner view and the top or bottom view), the orthogonal drawings (that is, the front view, right side view, and top view) and the foundation view (that is, the shape of the foundation, placement and the number of cubes that are built on this foundation) and, conversely, given the drawings, build the models |
| | Grade 7: Mathematics: Geometry | 8.4.2.A identify and use correct notation for triangle congruence of Side-Side-Side, Side-Angle-Side, and Angle-Side-Angle |
| | Grade 7: Mathematics: Geometry | 8.4.2.B reason informally about the relationships among angles formed by two lines cut by a transversal and two parallel lines cut by a transversal |
| | Grade 7: Mathematics: Geometry | 8.4.2.C reason informally about the sum of the measures of the angles of a triangle equaling 180E |
| | Grade 7: Mathematics: Geometry | 8.4.2.D reason informally about the properties of the special right triangles, 30E-60E-90E and 45E-45E-90E |
| | Grade 7: Mathematics: Geometry | 8.4.2.E continue to reason informally about the sides and angles of congruent and similar polygons |
| | Grade 7: Mathematics: Geometry | 8.4.2.F demonstrate proportional reasoning to indirectly determine lengths of segments of similar polygons |
| | This can be covered in many other areas | 8.4.4.A enlarge figures on a coordinate plane by rational scale factors |
| | This can be covered in many other areas | 8.4.4.B reduce figures on a coordinate plane by rational scale factors |
| | This can be covered in many other areas | 8.4.4.C determine the percent increase or decrease of perimeter and area of the enlargement or reduction of squares, rectangles, and triangles |
| | This can be covered in many other areas | 8.4.4.D describe the relationship of more than two points on the coordinate plane |
| | This can be covered in many other areas | 8.4.4.E given a distance, find pairs of points on the coordinate plane separated by that distance |
| | This can be covered in many other areas | 8.4.4.F determine the distance between a pair of points in the coordinate plane |
| | Grade 6: Mathematics: Geometry | 8.4.5.A solve problems involving perimeter and area of trapezoids |
| | Grade 7: Mathematics: Geometry | 8.4.5.B solve problems involving volume of square pyramids and cones |
| | Grade 7: Mathematics: Geometry | 8.4.5.C solve problems involving surface area of cylinders |
| | This can be covered in many other areas | 8.4.6.A determine the scale factor for dilations to illustrate similarity |

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| | This can be covered in many other areas | 8.4.6.B create Escher-type tessellations to illustrate congruence |
| | This can be covered in many other areas | 8.4.6.C state the coordinates to describe the reflection of a figure across the x- and y-axes |
| | This can be covered in many other areas (Geometry) | 8.5.1.A estimate the length of the sides and height of trapezoids |
| | This can be covered in many other areas (Geometry) | 8.5.1.B estimate the perimeter and area of trapezoids |
| | This can be covered in many other areas (Geometry) | 8.5.1.C continue to compare the perimeter and area of transformed geometric figures |
| | This can be covered in many other areas (Geometry) | 8.5.1.D estimate the volume of square pyramids and cones |
| | This can be covered in many other areas (Geometry) | 8.5.1.E estimate the surface area of cylinders |
| | Grades 4, 5, and 6: Mathematics: Measurement | 8.5.1.F continue to estimate and use the capacity, weight, and mass measurements from previous grades |
| | This can be covered in many other areas (Geometry) | 8.5.1.G estimate measures of angles |
| | This can be covered in many other areas | 8.5.2.A compare the estimates and direct measurements obtained in benchmarks 5.1, 5.4, and 5.6 |
| | This can be covered in many other areas | 8.5.2.B demonstrate proportional reasoning to indirectly determine lengths of segments of similar polygons |
| | Grades 4, 5, and 6: Mathematics: Measurement | 8.5.3.A read and interpret scales on number lines, graphs, and maps |
| | Grades 4, 5, and 6: Mathematics: Measurement | 8.5.3.B select the appropriate scale for a given problem |
| | This can be covered in many other areas | 8.5.3.C construct scale drawings |
| | Grade 7: Mathematics: Geometry | 8.5.4.A develop and use formulas for the perimeter and area of trapezoids using appropriate units |
| | Grade 7: Mathematics: Geometry | 8.5.4.B develop and use the formula for volume of square pyramids and cones using appropriate units |
| | Grade 7: Mathematics: Geometry | 8.5.4.D use the relationships in 30-60-90 and 45-45-90 triangles to solve problems |
| | Grade 6: Mathematics: Geometry | 8.5.5.A describe how changing the radius of a circle affects the circumference and area |
| | Grade 6: Mathematics: Geometry | 8.5.5.B describe how changing the height or radius of the base of a cylinder affects the volume |
| | Grade 7: Mathematics: Geometry | 8.5.6.A select and use the appropriate units and tools to measure to the degree of accuracy required in a particular problem |
| | This can be covered in many other areas (Geometry) | 8.5.6.B measure the length of the sides and heights of trapezoids to the nearest sixteenth inch and nearest millimeter |
| | This can be covered in many other areas (Geometry) | 8.5.6.C using a protractor, measure angles of two lines cut by a transversal and angles of two parallel lines cut by a transversal |
| | Grade 6: Mathematics: Ratio, Percent, and Proportion | 8.6.1.A compute percent of increase or decrease in real-world problems |
| | This can be covered in many other areas | 8.6.1.B apply proportional reasoning in problem-solving situations (for example, scale, similarity, percentage, unit pricing, simple interest, and rate) |
| | Grade 6: Mathematics: Computation | 8.6.2.A demonstrate order of operations with rational numbers |
| | Grade 6: Mathematics: Computation | 8.6.2.B demonstrate the meaning of the four basic operations of rational numbers |
| | Grade 6: Mathematics: Computation | 8.6.2.C using paper-and-pencil, demonstrate with proficiency computation of rational numbers |
| | Grade 6: Mathematics: Computation | 8.6.2.D demonstrate the inverse relationship of addition and subtraction of rational numbers |
| | Grade 6: Mathematics: Computation | 8.6.2.E demonstrate the inverse relationship of multiplication and division of rational numbers |
| | Grade 6: Mathematics: Computation | 8.6.2.F demonstrate multiplication of rational numbers as repeated addition |
| | This can be covered in many other areas | 8.6.3.A determine from real-world problems whether an estimated or exact answer is acceptable |
| | This can be covered in many other areas | 8.6.3.B use estimation techniques before performing operations |
| | This can be covered in many other areas | 8.6.4.A determine whether information given in a problem-solving situation is sufficient, insufficient, or extraneous |
| | This can be covered in many other areas | 8.6.4.B given a real-world problem-solving situation, use the correct operation and appropriate method (mental arithmetic, estimation, paper-and-pencil, calculator, or computer) to solve the problem |
| | This can be covered in many other areas | 8.6.4.C given a math sentence using the four operations with positive rational numbers and integers, create and illustrate a real-world problem |
| | This can be covered in many other areas | 8.6..4D in a problem-solving situation, determine whether the results are reasonable and justify those results with correct computations |
| **Core Knowledge® Content** (Science-Grade 8) | | **Colorado Grade Level Expectations** (Grade 8-Science) |
| Teachers: Effective instruction in science requires not only hands-on experience | | |

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| and observation but also book learning, which helps bring coherence and order to student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in selective study of topics, a number of which were introduced in earlier grades. It also continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings. | |
| **I. Physics** | |
| **A. Motion** | |
| ▪ | |
| ▪ | 8.2.I interpret graphs of position versus time and speed versus time for motion in a single direction |
| **B. Forces** | |
| ▪ | 8.2.J know that force has both direction and magnitude and when an object is subject to two or more forces at once, the effect is the cumulative effect of all the forces |
| ▪ | 8.2.J know that force has both direction and magnitude and when an object is subject to two or more forces at once, the effect is the cumulative effect of all the forces<br>8.2.K know that when forces on an object are balances, the motion of the object does not change; when the forces are unbalanced the object will change its motion (e.g. speed up, slow down, or change direction)<br>8.2.L demonstrate that simple machines can be used to change the direction or size of a force (e.g. measure the effectiveness of a lever in moving objects with different masses) |
| **C. Density and Buoyancy** | |
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| **D. Work** | |
| ▪ | |
| **E. Energy** | |
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| ▪ | 8.2.G determine the potential and kinetic energy of a cart as it moves up and down an inclined lane<br>8.2.H interpret and explain the relationship among kinetic energy, potential energy, and mechanical advantage (e.g. demonstrate the types of energy, changes in motion, and mechanical advantage involved in shooting an arrow)<br>8.2.R understand that chemical energy is stored in chemical bonds between atoms in elements and compounds |
| ▪ | |
| **F. Power** | |
| ▪ | |
| **II. Electricity and Magnetism** | |
| **A. Electricity** | |
| ▪ | 8.2.M compare series and parallel circuits<br>8.2.N use various materials in a simple circuit, show the difference between conductors and insulators and compare the efficiency of electrical conductors) |
| **B. Magnetism and Electricity** | |
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| **III. Electromagnetic Radiation and Light** | |
| ▪ | 8.2.B classify waves as mechanical (sound, tidal, earthquake) or electromagnetic (radio, sunlight) |

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| ▪ | 8.2.C draw an electromagnetic spectrum and identify the forms of radiant energy in the visible part of the spectrum and the use of the non visible part of the spectrum (e.g. x-rays, microwaves, ultra violet light) |
| ▪ | 8.2.D know that white light is a mixture of many wavelengths and that retinal cells react differently with different wavelengths<br>8.2.E know that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection)<br>8.2.F know that the angle of reflection of a light beam is equal to the angle of incidence |
| **IV. Sound Waves** | |
| ▪ | 8.2.A experiment with tuning forks, ripple tanks, "slinkys," and other objects to observe and analyze problems with waves |
| ▪ | 8.2.B classify waves as mechanical (sound, tidal, earthquake) or electromagnetic (radio, sunlight) |
| **IV. Chemistry of Food and Respiration** | |
| ▪ | |
| ▪ | 8.2.O understand that chemical reactions are processes in which atoms are rearranged into different combinations of molecules, also covered in Grade 5: Science: Chemistry: Matter and Change and Grade 7: Science: Chemical Bonds and Reactions |
| ▪ | 8.6.E identify and illustrate natural cycles within systems |
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| **VI. Science Biographies** | |
| ▪ | 8.6.C describe the contributions of science made by people in different cultures and at different times in history |
| **Grade level or other area Grade Level Expectations are covered in the *Core Knowledge Sequence*** | **Grade Level Expectations not directly covered in the *Core Knowledge Sequence*, but can be covered in other areas** |
| This can be covered in many other areas, see note to teachers above | 8.1.A create a written plan to include the question to be investigated, an appropriate hypothesis, design of the experiment, identification of the control and labeled variables, a developed scientific procedure to collect and record data; the design should also include a number of repeated trials, unbiased sampling, accurate measurements and record keeping and a comparison to a control |
| This can be covered in many other areas, see note to teachers above | 8.1.B apply scientific ideas, concepts, and relationships to the formation of scientific questions |
| This can be covered in many other areas, see note to teachers above | 8.1.C evaluate explanations by examining evidence, comparing evidence, identifying faulty reasoning, and pointing out statements that go beyond the evidence |
| This can be covered in many other areas, see note to teachers above | 8.1.D predict an outcome based on a set of experimental data |
| This can be covered in many other areas, see note to teachers above | 8.1.E recognize that scientific investigations sometimes generate new methods or procedures for an investigation or develop new technologies to improve the collection of data |
| This can be covered in many other areas, see note to teachers above | 8.1.F refine hypotheses from a previous investigation |
| This can be covered in many other areas, see note to teachers above | 8.1.G construct a model to predict change (e.g. stream table, computer simulation) |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.H organize and construct representation of data into appropriate formats (e.g. histograms, circle graphs, flow charts) and make inferences based on that data |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.I interpret patterns, trends, relationships in collected data |
| This can be covered in many other areas, see note to teachers above | 8.1.J state relationships in terms of the relationship between two or more variables |
| This can be covered in many other areas, see note to teachers above | 8.1.K evaluate the accuracy and reproductibility of data |
| This can be covered in many other areas, see note to teachers above | 8.1.L analyze data and evaluate hypothesis |
| This can be covered in many other areas, see note to teachers above | 8.1.M identify areas for further investigation |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.N construct appropriate graphs from data and develop quantitative statements about the relationships between |

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| | | variables |
| | This can be covered in many other areas, see note to teachers above | 8.1.O communicate the logical connection among hypothesis, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence |
| | Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.P distinguish between linear and non-linear relationships on a graph of data |
| | Grade 7: Mathematics: Measuring | 8.1.Q use metric units in measuring, calculating, and reporting results |
| | This can be covered in many other areas, see note to teachers above | 8.1.R acknowledge that the scientific community accepts and uses explanations until those explanations are displaced by better scientific ones |
| | This can be covered in many other areas, see note to teachers above | 8.1.S acknowledge different ideas and explanations, be able to accept the skepticism of others, and consider alternative explanations |
| | Grade 7: Science: Chemical Bonds and Reactions | 8.2.P know that in chemical reactions, the number of atoms stays the same no matter how they are arranged so their total mass stays the same (conservation of matter) |
| | Grade 7: Science: Chemical Bonds and Reactions | 8.2.Q determine whether a solution is acidic, basic, or neutral |
| | Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 8.3.A explain the characteristics of plants and animals that enable them to survive |
| | Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 8.3.B compare, contrast, and explain the difference in biodiversity of different ecosystems |
| | Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 8.3.C explain the causes and effects of changes in populations (e.g. predator-prey, human, and carrying capacity) |
| | Grade 5: Science: Cells: Structures and Processes | 8.3.D organize information into a model that demonstrates the interaction of systems of cells, tissues, organs, and organ networks in a complex multi cellular organism through chemical and physical processes) |
| | Grade 7: Science: Cell Division and Genetics | 8.3.E use models to demonstrate how genetic material is transmitted and how gene traits are expressed in offspring (e.g. Punnett squares and pedigree charts to show how single gene traits are expressed in offspring) |
| | Grade 5: Science: Plant Structures and Processes and Life Cycles and Reproduction | 8.3.F describe sexual reproduction patterns in flowering plants and a variety of animals |
| | Grade 2: Science: Life Cycles, Grade 5: Science: Plant Structures and Processes and Life Cycles and Reproduction | 8.3.G observe, describe, and measure changes that occur in an organism as it develops from a seed or fertilized egg to an adult (e.g. bean plant, frog, chicken) |
| | | 8.3.H research the evolutionary adaptation of a number of present day organisms and explain how these adaptations contributed to the survival of the organism (e.g. beak shape, protective coloration, flower color) |
| | Grade 4: Science: Meteorology | 8.4.A describe the gaseous composition of the atmosphere |
| | Grade 4: Science: Meteorology | 8.4.B measure humidity, temperature, and pressure of the troposphere |
| | Grade 4: Science: Meteorology and Grade 7: Science: Energy, Heat, and Energy Transfer | 8.4.C explain how atmospheric circulation is driven by solar heating which involves radiation, convection, and conduction |
| | Grade 4: Science: Meteorology and Grade 6: Science: Plate Tectonics | 8.4.D know that the Earth has three distinct physical spheres (atmosphere, hydrosphere, and lithosphere) and each has different compositions yet interfaces with each other |
| | Grade 3: Science: History and Geography: World Geography: Important Rivers of the World, Grade 4: Science: Meteorology, Grade 5: History and Geography: World Geography: Great Lakes of the World, and Grade 6: Science: Oceans | 8.4.E use graphs and charts to describe and compare the distribution of the world's water including rivers, oceans, ground water, and atmosphere |
| | Grade 3: Science: History and Geography: World Geography: Important Rivers of the World, Grade 4: Science: Meteorology, Grade 5: History and Geography: World Geography: Great Lakes of the World, and Grade 6: Science: Oceans | 8.4.F use diagrams/models and show the direction of water circulation through Earth's systems |
| | Grade 3: Science: Astronomy, Grade 4: Science: Meteorology | 8.4.G know that the yearly revolution of Earth in its orbit around the sun and the tilt on it axis cause the angle at which sunlight strikes the Earth to vary at different locations; this causes differences in the heating of Earth's surface which produce seasonal variations in weather and a variety of climates |

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| | This can be covered in many other areas, see note to teachers above | 8.5.A identify and analyze ways in which advances in science and technology have affected each other and society |
| | This can be covered in many other areas, see note to teachers above | 8.5.B use the results of material tests (e.g. hardness, tensile strength, conductivity) to suggest appropriate uses for materials |
| | This can be covered in many other areas, see note to teachers above | 8.5.C evaluate designs, devices, or solutions and develop measures of quality |
| | This can be covered in many other areas, see note to teachers above | 8.6.A explain why a controlled experiment must have comparable results when repeated |
| | This can be covered in many other areas, see note to teachers above | 8.6.B give examples of how scientific knowledge changes as new knowledge is acquired and previous ideas are modified |
| | This can be covered in many other areas, see note to teachers above | 8.6.D identify, compare, and predict variables and conditions related to change |
| | This can be covered in many other areas, see note to teachers above | 8.6.F use models to predict change |