Grade Six

English-language Arts Content Standards

California State Standards	Journey School Alignment / Supplementation	Remarks
Reading		
1.0 Word Analysis, Fluency and Systematic Vocabulary Development Students use their knowledge of word origins and word relationships, as well as historical and literary context clues, to determine the meaning of specialized vocabulary and to understand the precise meaning of grade-level-appropriate words.	**1.0 As stated, in addition:** Vocabulary is developed in a class-reading program requiring students to read at least 9 books. They read 3 of these as in-class readers, and 6 on their own. 6 books are assigned, and accompanied by comprehension questions; 3 books are chosen by the students and are accompanied by artistic presentation. Students are expected to recall significant events or details from reading assignments, thereby indicating good comprehension and recall skills. This is assessed by verbal recall sessions in class, contests/quizzes, and short reports assigned as homework	
Word Recognition 1.1 Read aloud narrative and expository text fluently and accurately and with appropriate pacing, intonation, and expression.	**1.1 As stated, in addition:** Students demonstrate fluency through oral reading with appropriate inflections by sentence closures, commas, questions, etc.	
Vocabulary and Concept Development 1.2 Identify and interpret figurative language and words with multiple meanings. 1.3 Recognize the origins and meanings of frequently used foreign words in English and use these words accurately in speaking and writing. 1.4 Monitor expository text for unknown words or words with novel meanings by using word, sentence, and paragraph clues to determine meaning 1.5 Understand and explain "shades of meaning" in related words (e.g., *softly* and *quietly*).	**1.2-1.5 As stated, in addition:** Vocabulary development, spelling, fluency and composition skills are addressed throughout the year in every block studied. Each new topic of integrated curriculum brings additional vocabulary words. Students read materials in which new vocabulary is used. There are as many as 15 new words introduced per week, and lists are made of new words introduced in all subjects. Students demonstrate a working knowledge of the alphabetization of words, and hence are able to check spellings and definitions through dictionary usage. They refer to dictionary or spell-checking devices in order to independently correct all first drafts. Students display consistent recall of words and learn to analyze words by context. Word etymology is presented in the context of studies of Rome-Latin language word roots.	

2.0 Reading Comprehension (Focus on Informational Materials) Students read and understand grade-level-appropriate material. They describe and connect the essential ideas, arguments, and perspectives of the text by using their knowledge of text structure, organization, and purpose. The selections in *Recommended Readings in Literature, Kindergarten Through Grade Eight* illustrate the quality and complexity of the materials to be read by students. In addition, by grade eight, students read one million words annually on their own, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade six, students continue to make progress toward this goal.	**2.0 As stated.**	
Structural Features of Informational Materials 2.1 Identify the structural features of popular media (e.g., newspapers, magazines, online information) and use the features to obtain information. 2.2 Analyze text that uses the compare-and-contrast organizational pattern.	**2.1-2.2 As stated, in addition:** Each main lesson block (10 total) requires an out-of-class research project and report. Students acquire information from various sources: newspapers, encyclopedias, magazines, source books, appropriate grade level novels, etc.	
Comprehension and Analysis of Grade-Level-Appropriate Text 2.3 Connect and clarify main ideas by identifying their relationships to other sources and related topics. 2.4 Clarify an understanding of texts by creating outlines, logical notes, summaries, or reports. 2.5 Follow multiple-step instructions for preparing applications (e.g., for a public library card, bank savings account, sports club, league membership).	**2.3-2.4 As stated, in addition:** Students improve comprehension, speed and word recognition by: ongoing use of reference materials; reading and oral recall of reports; drawing of critical conclusions; and demonstrating understanding of main ideas and supporting details. Students exhibit an increasing ability to verbally synopsize and critically evaluate reading materials, thereby indicating good comprehension skills. 2.5 Students demonstrate reading-for-information skills: scanning visual information such as charts and graph, recalling data or events, collecting data, and following sequential operations.	
Expository Critique 2.6 Determine the adequacy and appropriateness of the evidence for an author's conclusions. 2.7 Make reasonable assertions about a text through accurate, supporting citations. 2.8 Note instances of unsupported inferences, fallacious reasoning, persuasion, and propaganda in text.	**2.6-2.8 As stated.**	

3.0 Literary Response and Analysis Students read and respond to historically or culturally significant works of literature that reflect and enhance their studies of history and social science. They clarify the ideas and connect them to other literary works. The selections in *Recommended Readings in Literature, Kindergarten Through Grade Eight* illustrate the quality and complexity of the materials to be read by students.	**3.0 As stated, in addition:** Students' reading occurs during the academic year and over summer break. There are several texts read aloud asclass readers; and the teacher reads texts and passages in the main lesson. Students keep individual lists of books read during the school year and the summer months.	
Structural Features of Literature 3.1 Identify the forms of fiction and describe the major characteristics of each form.	**3.1 As stated, in addition:** Students participate in narrative analysis of Roman literature, and tales of the Middle Ages, chivalry and medieval romance, legends of Robin Hood and King Arthur, ballad, and folklore.	
Narrative Analysis of Grade-Level-Appropriate Text 3.2 Analyze the effect of the qualities of the character (e.g., courage or cowardice, ambition or laziness) on the plot and the resolution of the conflict. 3.3 Analyze the influence of setting on the problem and its resolution. 3.4 Define how tone or meaning is conveyed in poetry through word choice, figurative language, sentence structure, line length, punctuation, rhythm, repetition, and rhyme. 3.5 Identify the speaker and recognize the difference between first-and third-person narration (e.g., autobiography compared with biography). 3.6 Identify and analyze features of themes conveyed through characters, actions, and images. 3.7 Explain the effects of common literary devices (e.g., symbolism, imagery, metaphor) in a variety of fictional and nonfictional texts.	**3.2-3.7 As stated, in addition:** Discussion of reading is an everyday occurrence. The teacher helps students to recognize plot development, foreshadowing, conflict, characterization, weakness or strength of argument, affective and persuasive prose, fallacy, etc. By their historical reading, students learn to identify true defining traits of character. **3.7 As stated, in addition:** Literary device is intrinsic to the thematics of history and social studies. Students are introduced to the themes of each historical period which they study. In Ancient cultures, these themes are often seen in the controlling myths of a culture; in history, the worldview or ethos of a culture or historical period often define its themes. The teacher identifies themes that appear in readings.	
Literary Criticism *3.8 Critique the credibility of characterization and the degree to which a plot is contrived or realistic (e.g., compare use of fact and fantasy in historical fiction).*	**3.8 As stated.**	

Writing		
1.0 Writing Strategies Students write clear, coherent, and focused essays. The writing exhibits students' awareness of the audience and purpose. Essays contain formal introductions, supporting evidence, and conclusions. Students progress through the stages of the writing process as needed.	**1.0 As stated.**	
Organization and Focus 1.1 Choose the form of writing (e.g., personal letter, letter to the editor, review, poem, report, narrative) that best suits the intended purpose. 1.2 Create multiple-paragraph expository compositions: a. Engage the interest of the reader and state a clear purpose. b. Develop the topic with supporting details and precise verbs, nouns, and adjectives to paint a visual image in the mind of the reader. c. Conclude with a detailed summary linked to the purpose of the composition. 1.3 Use a variety of effective and coherent organizational patterns, including comparison and contrast; organization by categories; and arrangement by spatial order, order of importance, or climactic order.	**1.1-1.3 As stated, in addition:** Each main lesson block (10 total) requires an out-of-class research project and report. These reports require multi-paragraph expository exposition of complex topics, described below in section 2. Students apply the compositional skills learned in the weekly English class. **1.3 As stated, in addition:** The teacher instructs students to use compositional patterns and formats found in class readings. For example, the teacher finds topic sentences in readings, and students learn to outline their compositions utilizing topic sentences. Main ideas and the subordination of concepts are demonstrated in this way. The students' compositions are constructed of ideas containing at least six sequential steps. And in this manner, students learn to compose rough drafts, present bibliographies, quote from sources, etc. And students learn by their own creative efforts.	
Research and Technology *1.4 Use organizational features of electronic text (e.g., bulletin boards, databases, keyword searches, e-mail addresses) to locate information.* *1.5 Compose documents with appropriate formatting by using word-processing skills and principles of design (e.g., margins, tabs, spacing, columns, page orientation).*	**1.4-1.5 In part:** Students disassemble a computer and put in back together, they learn the interworkings and terminology of a computer. Basic keyboarding and formatting skills are developed.	
Evaluation and Revision 1.6 Revise writing to improve the organization and consistency of ideas within and between paragraphs.	**1.6 As stated, in addition:** Students are capable of identifying misspelled words and are developing their editing skills. They refer to dictionary or spell-checking devices and independently correct all first drafts. Students proofread written material and self-edit spelling, punctuation and capitalization errors. Students re-write material for final copy. Students self-edit to add details, improve clarity, and re-group sentences for clearer meaning or efficiency.	

2.0 Writing Applications (Genres and Their Characteristics) Students write narrative, expository, persuasive, and descriptive texts of at least 500 to 700 words in each genre. Student writing demonstrates a command of standard American English and the research, organizational, and drafting strategies outlined in Writing Standard 1.0.	**2.0 As stated.**	
Using the writing strategies of grade six outlined in Writing Standard 1.0, students: 2.1 Write narratives: a. Establish and develop a plot and setting and present a point of view that is appropriate to the stories. b. Include sensory details and concrete language to develop plot and character. c. Use a range of narrative devices (e.g., dialogue, suspense). 2.2 Write expository compositions (e.g., description, explanation, comparison and contrast, problem and solution): a. State the thesis or purpose. b. Explain the situation. c. Follow an organizational pattern appropriate to the type of composition. d. Offer persuasive evidence to validate arguments and conclusions as needed. 2.3 Write research reports: a. Pose relevant questions with a scope narrow enough to be thoroughly covered. b. Support the main idea or ideas with facts, details, examples, and explanations from multiple authoritative sources (e.g., speakers, periodicals, online information searches). c. Include a bibliography. 2.4 Write responses to literature: a. Develop an interpretation exhibiting careful reading, understanding, and insight. b. Organize the interpretation around several clear ideas, premises, or images. c. Develop and justify the interpretation through sustained use of examples and textual evidence. 2.5 Write persuasive compositions: a. State a clear position on a proposition or proposal. b. Support the position with organized and relevant evidence. c. Anticipate and address reader concerns and counterarguments.	**2.1-2.5 As stated, in addition:** Students write in various styles and apply various compositional strategies: In science, an expository and descriptive genre is generally required. However, poetic expression may be appropriate to describe a phenomenon such as the six-fold symmetry of a snowflake. In history, the narrative style would generally be employed to recount what a student has heard or read. But some studies call forth other styles including: contrast and comparison (e.g. the contrast of Spartan and Athenian culture); persuasion (e.g. Caesar's exhortations to troops to endure greater hardship, or Socrates' convincing Athenians of the merits of virtue); dramatic rendering of scene and character (e.g. Caesar's struggle to decide whether or not to disobey Rome and cross the Rubicon with his troops); and dialog built on a historical event (e.g. the argument among the Sabine women.) Also, students write business letters, and letters of friendship.	

Written and Oral English Language Conventions.		
The standards for written and oral English language conventions have been placed between those for writing and for listening and speaking because these conventions are essential to both sets of skills.		
1.0 Written and Oral English Language Conventions Students write and speak with a command of standard English conventions appropriate to this grade level.	**1.0 As stated.**	
Sentence Structure 1.1 Use simple, compound, and compound-complex sentences; use effective coordination and subordination of ideas to express coordination and subordination of ideas to express complete thoughts. **Grammar** 1.2 Identify and properly use indefinite pronouns and present perfect, past perfect, and future perfect verb tenses; ensure that verbs agree with compound subjects. **Punctuation** 1.3 Use colons after the salutation in business letters, semicolons to connect independent clauses, and commas when linking two clauses with a conjunction in compound sentences. **Capitalization** 1.4 Use correct capitalization. **Spelling** 1.5 Spell frequently misspelled words correctly (e.g., their, they're, there).	**1.1 As stated, in addition:** Students learn many forms of sentence structure: simple declarative, interrogative, exclamatory and imperative; compound sentences with coordinate conjunctions and semicolons; complex sentences with adjective phrases and clauses. Conditional sentences and subjunctive mood are strongly emphasized. Students are developing sentence diagramming skills. Students display grade-appropriate sentence construction with proper usage of descriptors, conjunctions and transitional phrases. Students generate sequential paragraphs using good structure (initial sentence, supporting material, closure and transition phrases or information). Students write with sequential organization, organized ideas, complete thoughts, and appropriate syntactical structures. **1.2 As stated, in addition:** Students are taught: transitive and intransitive verbs; adverbs; possessive and objective nouns; adverbial phrases and clauses; adjectives; subordinate conjunctions. **1.3-1.4 As stated.** **1.5 As stated, in addition:** Concern for spelling was addressed above at the discussion of word recognition and vocabulary development. Students are familiar with rules of syllabication. Students demonstrate consistent use of spelling rules and memorizing of sight words. Students meet grade-level expectations for spelling of sight words as evidenced by participation in class-based spelling activities/bees/quizzes. Journey School has adopted the CUSD Word Study developmental spelling program and implements the assessments, words sorts and tracks student progress.	

Listening and Speaking		
1.0 Listening and Speaking Strategies Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience. They evaluate the content of oral communication.	**1.0 As stated, in addition:** Students exhibit good listening, verbal memory and comprehension skills by their participation in class lesson recall occurring after a twenty-four hour period has elapsed. Students recall factual content required by concepts in their science, math, and grammar blocks. Students make oral presentations of their reading and reports. Students discuss and critique reports, oral and otherwise. Listening skills are further developed during 20- to 45-minute teacher presentations of stories, myth, legend, and factual content from the history of Rome and the Middle Ages.	
Comprehension 1.1 Relate the speaker's verbal communication (e.g., word choice, pitch, feeling, tone) to the nonverbal message (e.g., posture, gesture). 1.2 Identify the tone, mood, and emotion conveyed in the oral communication. 1.3 Restate and execute multiple-step oral instructions and directions. **Organization and Delivery of Oral Communication** 1.4 Select a focus, an organizational structure, and a point of view, matching the purpose, message, occasion, and vocal modulation to the audience. 1.5 Emphasize salient points to assist the listener in following the main ideas and concepts. 1.6 Support opinions with detailed evidence and with visual or media displays that use appropriate technology. 1.7 Use effective rate, volume, pitch, and tone and align nonverbal elements to sustain audience interest and attention. **Analysis and Evaluation of Oral and Media Communications** 1.8 Analyze the use of rhetorical devices (e.g., cadence, repetitive patterns, use of onomatopoeia) for intent and effect. 1.9 Identify persuasive and propaganda techniques used in television and identify false and misleading information.	**1.1-1.3 As stated, in addition:** Students exhibit growing ease with verbal dictation. They are able to construct orally-dictated sentences with grade-appropriate accuracy. These sentences contain sight vocabulary as well as appropriate phonetically-based spelling. Students use vocabulary from verbally told material, thereby exhibiting expanding word finding and vocabulary building skills. Students present oral reports and answer questions posed by the teacher. They demonstrate ability to write dictations of varying lengths, and follow oral and written directions. **1.4-1.7 As stated, in addition:** Correct and fluent speaking is supported by students work on a class play comprising 8 weeks, 1 period daily. The play is performed before an audience—usually the rest of the school and the parent body. During practice of the play students work on speech exercises to enhance projection, articulation, and fluency. **1.6 As stated, in addition:** Students exhibit full engagement in verbally told story material by free renderings (and other artistic projects) depicting the material and their relationship to it. **1.7 As stated, in addition:** Students read with inflections required by sentence closures, commas, questions, etc. Fluency in oral reading is accomplished. **1.8 As stated, in addition:** Students participate in both choral recitation and individual recitation of poetry and prose dramatizations. Students demonstrate skill in sound discrimination, recognition of rhyming words, alliterative words and other word groupings and the use of these in presenting self-generated poetry, prose, fiction and non-fiction. (Class and public presentations.) **1.9 As stated, in addition:** Analysis and evaluation of rhetoric occurs in context of historical studies, discussed above.	

2.0 Speaking Applications (Genres and Their Characteristics) Students deliver well-organized formal presentations employing traditional rhetorical strategies (e.g., narration, exposition, persuasion, description). Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0.	**2.0 As stated.**	
Using the speaking strategies of grade six outlined in Listening and Speaking Standard 1.0, students: 2.1 Deliver narrative presentations: a. Establish a context, plot, and point of view. b. Include sensory details and concrete language to develop the plot and character. c. Use a range of narrative devices (e.g., dialogue, tension, or suspense). 2.2 Deliver informative presentations: a. Pose relevant questions sufficiently limited in scope to be completely and thoroughly answered. b. Develop the topic with facts, details, examples, and explanations from multiple authoritative sources (e.g., speakers, periodicals, online information). 2.3 Deliver oral responses to literature: a. Develop an interpretation exhibiting careful reading, understanding, and insight. b. Organize the selected interpretation around several clear ideas, premises, or images. c. Develop and justify the selected interpretation through sustained use of examples and textual evidence. 2.4 Deliver persuasive presentations: a. Provide a clear statement of the position. b. Include relevant evidence. c. Offer a logical sequence of information. d. Engage the listener and foster acceptance of the proposition or proposal. 2.5 Deliver presentations on problems and solutions: a. Theorize on the causes and effects of each problem and establish connections between the defined problem and at least one solution. b. Offer persuasive evidence to validate the definition of the problem and the proposed solutions.	**2.1-2.5 As stated, in addition:** These standards are met by students' narration, recitation, argumentation, and dramatization of lessons and by their work on the class play. Students demonstrate ability to memorize and recite this material. Students exhibit a growing ability to verbally express self-generated reports and/or other materials organized in clear, concise and complete presentations.	

Grade Six

History-Social Science Content Standards

California State Standards	Journey School Alignment	Remarks
World History and Geography: Ancient Civilizations Students in grade six expand their understanding of history by studying the people and events that ushered in the dawn of the major Western and non-Western ancient civilizations. Geography is of special significance in the development of the human story. Continued emphasis is placed on the everyday lives, problems, and accomplishments of people, their role in developing social, economic, and political structures, as well as in establishing and spreading ideas that helped transform the world forever. Students develop higher levels of critical thinking by considering why civilizations developed where and when they did, why they became dominant, and why they declined. Students analyze the interactions among the various cultures, emphasizing their enduring contributions and the link, despite time, between the contemporary and ancient worlds	**Overview** In the 5th grade year, students studied ancient civilizations during 12 weeks of main lesson studies. A seven thousand year period was studied beginning with nomadic and hunter-gatherer societies to the inception of city-cultures in Ancient India, Ancient Persia, Ancient Mesopotamia, Ancient Egypt and finally, an introduction to the world of Ancient Greece. Students were familiarized with these cultures by their study of architectural artifacts; the way of life, dress, food, dwellings, work, recreation and festivals; religious beliefs and cosmology; and the controlling myths of the culture. Beginning in the 6th Grade Year, students enter fully into the Classical world with lessons as follows: 3 weeks The Culture, History and Life of Ancient Greece 4 weeks The Culture, History, and Life of Ancient Rome 3 weeks The European Medieval Ages and the Rise of Islamic Culture 4 weeks European and Russian Geography (A Main Lesson Block consists of 2 hours of instruction every morning, 5 days per week; a 4 week block is the equivalent of 40+ instructional hours.)	
6.1 Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution. 1. Describe the hunter-gatherer societies, including the development of tools and the use of fire. 2. Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments. 3. Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.	**6.1 Was taught in the 3rd and 5th grades extensively and will be reviewed in 6th grade for grade level understanding.** All 3 points of 6.1 were addressed in 5th grade Ancient Civilizations, and in the 3rd grade study of the interaction of Ancient Hebrew nomads with Mesopotamian city cultures.	

6.2 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Mesopotamia, Egypt, and Kush. 1. Locate and describe the major river systems and discuss the physical settings that supported permanent settlement and early civilizations. 2. Trace the development of agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power. 3. Understand the relationship between religion and the social and political order in Mesopotamia and Egypt. 4. Know the significance of Hammurabi's Code. 5. Discuss the main features of Egyptian art and architecture. 6. Describe the role of Egyptian trade in the eastern Mediterranean and Nile valley. 7. Understand the significance of Queen Hatshepsut and Ramses the Great. 8. Identify the location of the Kush civilization and describe its political, commercial, and cultural relations with Egypt. 9. Trace the evolution of language and its written forms.	**6.2 Was taught in 5th grade extensively and will be reviewed in 6th grade for grade level understanding.** 3 weeks of main lesson studies in the 5th grade were devoted to Ancient Egypt and the Kush headlands of the Upper Nile. Another 3 weeks in the 5th grade were devoted to the study of the city-cultures arising in the Tigris-Eurphrates basin, e.g. Sumeria, Assyria, Babylonia. During these studies, the students learn to identify the major river systems (6.1.1), learn of the development of agriculture, surplus grain, irrigation, and the resulting monetary and banking system that arose in a city such as Ur (6.2.2). The controlling myths (e.g. Isis and Osiris in Egypt, Gilgamesh in Mesopotamia) and their integration with cultural and political life are studied (6.2.3). The earliest laws such as the Code of Manu from India, is compared with the Code of Hammurabi (6.2.4), which will later be compared again to Roman Law in the 6th grade. Students in the 5th grade compare Egyptian with Babylonian architecture (e.g. pyramid with ziggeraut) (6.2.5), study Egyptian hieroglyphs as well as cuneiform (6.2.9), investigate some of the prominent rulers of Egypt and their intersection with other areas of history already studied (e.g. Ramses and Egypt; monotheism and Ankhnaton, etc.) (6.2.7).	
6.3 Students analyze the geographic, political, economic, religious, and social structures of the Ancient Hebrews. 1. Describe the origins and significance of Judaism as the first monotheistic religion based on the concept of one God who sets down moral laws for humanity. 2. Identify the sources of the ethical teachings and central beliefs of Judaism (the Hebrew Bible, the Commentaries): belief in God, observance of law, practice of the concepts of righteousness and justice, and importance of study; and describe how the ideas of the Hebrew traditions are reflected in the moral and ethical traditions of Western civilization. 3. Explain the significance of Abraham, Moses, Naomi, Ruth, David, and Yohanan ben Zaccai in the development of the Jewish religion. 4. Discuss the locations of the settlements and movements of Hebrew peoples, including the Exodus and their movement to and from Egypt, and outline the significance of the Exodus to the Jewish and other people. 5. Discuss how Judaism survived and developed despite the continuing dispersion of much of the Jewish population from Jerusalem and the rest of Israel after the destruction of the second Temple in A.D. 70.	**6.3 Was taught in 3rd grade extensively and will be reviewed in 6th for grade level understanding.** Much of the 3rd grade year was devoted to the study of the nomadic culture of the Ancient Hebrews in parallel to the emerging city cultures of Mesopotamia. That included: the study of the culture of the Ancient Hebrews from the time of nomadic wanderings through the Egyptian captivity to the time of theocratic government joined to a monotheistic religion (6.3.1) and the eventual transition to a city culture ruled by kings. The Laws of Moses was learned (6.3.1 and 6.3.2) as well as some of the prescriptive laws and regulations. The lives of central figures were studied (e.g., Abraham, Jacob, Ruth, Solomon, etc.) (6.3.3) as well as significant episodes in the history of the Hebrew peoples (e.g., the Exodus, Babylonian captivity, building of the Temple of Jerusalem, etc.) (6.3.4). 6.3.5 In 6th grade Roman History, students encounter the razing of the second temple in 70 AD (6.3.5) and the eventual Diaspora	

6.4 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Ancient Greece. 1. Discuss the connections between geography and the development of city-states in the region of the Aegean Sea, including patterns of trade and commerce among Greek city-states and within the wider Mediterranean region. 2. Trace the transition from tyranny and oligarchy to early democratic forms of government and back to dictatorship in ancient Greece, including the significance of the invention of the idea of citizenship (e.g., from Pericles' Funeral Oration). 3. State the key differences between Athenian, or direct, democracy and representative democracy. 4. Explain the significance of Greek mythology to the everyday life of people in the region and how Greek literature continues to permeate our literature and language today, drawing from Greek mythology and epics, such as Homer's Iliad and Odyssey, and from Aesop's Fables. 5. Outline the founding, expansion, and political organization of the Persian Empire. 6. Compare and contrast life in Athens and Sparta, with emphasis on their roles in the Persian and Peloponnesian Wars. 7. Trace the rise of Alexander the Great and the spread of Greek culture eastward and into Egypt. 8. Describe the enduring contributions of important Greek figures in the arts and sciences (e.g., Hypatia, Socrates, Plato, Aristotle, Euclid, Thucydides)	**6.4 Is taught as stated in the 6th grade with this exception:** In the 5th grade the students learned some of the major myths of Ancient Greece including excerpts from Homer's Odyssey and Iliad. In the 2nd grade the Fables of Aesop were introduced. (6.4.4) 6.4.1-6.4.8 is found in the 6th grade curriculum as follows: Circumpolar constellations are introduced in 6th grade Astronomy with the retelling of the legends of Perseus, Andromeda, Cassiopeia, etc. In the 6th grade, students consider precursor Western cultures such as the Minoans; then study the development of the Greek city-states in the time of Homer, through the Golden Age of Athens, into the Hellenistic Empire of Alexander the Great. Students survey the intersection of Mediterranean cultures by trade, and the sharing of knowledge (6.4.1) by travelers such as Pythagoras and Thales to Egypt. Students learn of the great achievements in Athenian architecture, drama, statuary, philosophy, democracy (6.4.3) and geometry, as well as the biographies of its leading figures (6.4.8). Students then study the major conflicts with the Persian empire, and the contrast of Greek independence and culture with Persian despotism and culture (6.4.5). Students also compare the stark and ascetic lifestyle of Sparta to that of Athens (6.4.6) and learn of the confederation of Greek states in the wars with Persia. The study concludes with the expansion of the Hellenistic world eastward under the rule of Alexander with his dream of the eventual marriage between the ancient culture and Hellas. (6.4.7)	
6.5 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of India. 1. Locate and describe the major river system and discuss the physical setting that sup-ported the rise of this civilization. 2. Discuss the significance of the Aryan invasions. 3. Explain the major beliefs and practices of Brahmanism in India and how they evolved into early Hinduism. 4. Outline the social structure of the caste system. 5. Know the life and moral teachings of Buddha and how Buddhism spread in India, Ceylon, and Central Asia. 6. Describe the growth of the Maurya empire and the political and moral achievements of the emperor Asoka. 7. Discuss important aesthetic and intellectual traditions (e.g., Sanskrit literature, including the Bhagavad Gita; medicine; metallurgy; and mathematics, including Hindu-Arabic numerals and the zero).	**6.5 Was taught in the 5th grade as follows and will be reviewed in 6th grade for grade level understanding.** Points 6.5.1 through 6.5.6 were covered in a 3 week block on Ancient India in the 5th grade. The students surveyed the major river systems as well as the spiritual importance of the Ganges, (6.5.1). Following their introduction to major beliefs of Hinduism (6.5.3), students learned of the caste system (6.6.4), and of the inspiration to the world of India's great religious literature including the Bhagavad Gita (6.5.7). The life of the Buddha was also studied, as was the development of a Buddhist culture under Asoka (6.5.6).	

6.6 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of China. 1. Locate and describe the origins of Chinese civilization in the Huang-He Valley during the Shang Dynasty. 2. Explain the geographic features of China that made governance and the spread of ideas and goods difficult and served to isolate the country from the rest of the world. 3. Know about the life of Confucius and the fundamental teachings of Confucianism and Taoism. 4. Identify the political and cultural problems prevalent in the time of Confucius and how he sought to solve them. 5. List the policies and achievements of the emperor Shi Huangdi in unifying northern China under the Qin Dynasty. 6. Detail the political contributions of the Han Dynasty to the development of the imperial bureaucratic state and the expansion of the empire. 7. Cite the significance of the trans-Eurasian "silk roads" in the period of the Han 8. Dynasty and Roman Empire and their locations. 9. Describe the diffusion of Buddhism northward to China during Han Dynasty.	**6.6 Is studied in the 7th grade.** In the 7th grade year at least 3 weeks of main lessons will be devoted to the study of China: from Antiquity (Shang Dynasty, Qin Dynasty, Song Dynasty, etc.; Confucianism, Taoism, Buddhism, etc.) through the Middle Ages and the emergence into modernism (This block is named *Medieval History in Africa, the Near East, and the Far East.*). The culture of China in the Middle Ages will also be addressed during a 7th grade block called *The Explorers: From Silk Route to the New World.* The spread of Buddhism to China will be studied in the 7th grade during the History Block called M*edieval History in Africa, the Near East, and Far East.* (6.5.4)	
6.7 Students analyze the geographic, political, economic, religious, and social structures during the development of Rome. 1. Identify the location and describe the rise of the Roman Republic, including the importance of such mythical and historical figures as Aeneas, Romulus and Remus, Cincinnatus, Julius Caesar, and Cicero. 2. Describe the government of the Roman Republic and its significance (e.g., written constitution and tripartite government, checks and balances, civic duty). 3. Identify the location of and the political and geographic reasons for the growth of Roman territories and expansion of the empire, including how the empire fostered economic growth through the use of currency and trade routes. 4. Discuss the influence of Julius Caesar and Augustus in Rome's transition from republic to empire. 5. Trace the migration of Jews around the Mediterranean region and the effects of their conflict with the Romans, including the Romans' restrictions on their right to live in Jerusalem. 6. Note the origins of Christianity in the Jewish Messianic prophecies, the life and teachings of Jesus of Nazareth as described in the New Testament, and the contribution of St. Paul the Apostle to the definition and spread of Christian beliefs (e.g., belief in the Trinity, resurrection, salvation). 7. Describe the circumstances that led to the spread of Christianity in Europe and other Roman territories. 8. Discuss the legacies of Roman art and architecture, technology and science, literature, language, and law.	**6.7 As stated.** 4 weeks of main lesson study are devoted to the culture of Ancient Rome. The study of Rome begins with the wanderings of Aeneas, the founding of the city by Romulus, the rule of six kings following Romulus and the eventual government of the Republic (6.7.1). There are many tales of valor and loyalty during the Roman Republic (6.7.1) especially seen in the writings of Livy, one of the sourcebooks used by the teacher. Roman law and governmental structure is studied (6.7.2) as well as the expansion of the Republic upon the Italian peninsula followed by the expansion of the Empire (6.7.3). The life of Jesus of Nazareth and the beliefs that developed into Christianity is studied, as well as the strife between Rome and Jerusalem (6.7.5; 6.7.6). Studies progress from the Empire of the Caesars to the Holy Roman Empire of Constantine and the formal establishment of Christianity. The invasion by Huns and vandals concludes the history. Special attention is paid to: Virgil's Aeneid; mythological accounts of early statehood; stories emphasizing Roman emperors from Romulus and Remus to the Pax Romana; Legends of early Christianity; and the Fall of Rome. Additionally, students examine the development of Western civilization from Rome through the Middle Ages through the following: stories of Germanic tribes, including Charlemagne, the Angles, Saxons and Vikings; biographies of St. Francis, Thomas Aquinas, Marco Polo and Henry the Second; The Crusades; and The Fall of Constantinople.	

Grade Six

Mathematics Content Standards

California State Standards	Journey School Alignment / Supplementation	Remarks
By the end of grade six, students have mastered the four arithmetic operations with whole numbers, positive fractions, positive decimals, and positive and negative integers; they accurately compute and solve problems. They apply their knowledge to statistics and probability. Students understand the concepts of mean, median, and mode of data sets and how to calculate the range. They analyze data and sampling processes for possible bias and misleading conclusions; they use addition and multiplication of fractions routinely to calculate to probabilities for compound events. Students conceptually understand and work with ratios and proportions; They compute percentages (e.g., tax, tips, interest). Students know about p and the formulas for the circumference and area of a circle. They use letters for numbers in formulas involving geometric shapes and in ratios to represent an unknown part of an expression. They solve on-step linear equations.	**I. Review of Decimals, Fractions, and the Four Processes** The 6th grade reviews arithmetical concepts of earlier grades, and further develops students' skills with the *four operations, fractions* (including operations with mixed numbers), *decimals*, and *decimal conversions* from fractions. **II. Simple Formulae; Area and Perimeter** Students are introduced to simple geometrical formulae such as area and perimeter of regular figures, circumference and area of a circle, etc. Additional formulae such as, d=2r used as an entry to algebra are introduced. **III. Introduction to Business Math; Intro to Graphs** A new focus is the study of business mathematics, and the analysis, use and understanding of graphs. Students plot a variety of statistics using bar graphs, pie charts, scatter plots, bell curve, etc., and work with measures of central tendency: mean, median, and mode. To apply percentages and decimals, students consider business scenarios including calculations of tax, interest, profit and loss, and markups and discounts applied to real world situations. **IV. Introduction to Ratios and Proportions** Also presented is an introduction to proportion and ratio, with students learning cross multiplication to solve ratio problems. **V. The Geometry of Nature** Students engage in a 3-week study of exact geometrical constructions created with straight edge, compass and T-square to recreate geometrical structures found in nature. For example, a six-fold division of the circle is recreated to illustrate the geometry of the snowflake, and students design a snowflake of their own creation. The six-fold structure also leads to the geometrical construction of the hexagons in the honeycomb, and some plants from the lily family. This leads to 12-fold and 5-fold division of the circle, the latter being the structure of the rose by which phi is revealed. This leads to a study of the Fibonacci numbers and their expression in many of nature's forms.	

Number Sense		
1.0 Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages:	**1.0 As stated, in addition:** Fractions now include operations with mixed numbers and decimal conversions.	
1.1 Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line. 1.2 Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (*a/b, a to b, a:b*). 1.3 Use proportions to solve problems (e.g., determine the value of N if 4/7 = N/21, find the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse. 1.4 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.	**1.1-1.4 As stated.**	
2.0 Students calculate and solve problems involving addition, subtraction, multiplication, and division:	**2.0 As Stated, in addition:** Students are able to listen to a complex (grade appropriate) word problem and mentally calculate the response to the question posed.	
2.1 Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation. 2.2 Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g., 5/8 ÷15/16 = 5/8 x 16/15 = 2/3). 2.3 Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations that use positive and negative integers and combinations of these operations. 2.4 Determine the least common multiple and the greatest common divisor of whole numbers; use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).	**2.1 As stated.** **2.2 As stated.** **2.3 As stated.** **2.4 As stated, in addition:** Students are capable of reducing and expanding fractions, and using the "lowest common denominator" (factoring, expanding notation) to work problems. Students learn: percentage, ratio and proportion, cross-multiplication to solve ratio problems, product of means equal to product of extremes, conversion of fractions to decimals and reverse, and conversion of fractions to percentage and the reverse. The above are applied in business mathematics as bookkeeping, margin, loss, profit, computing and compounding interest, dividends and principal on checking and savings accounts, bills of various types, simple interest, and selling price.	

Algebra and Functions		
1.0 Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results:	**1.0 As stated, in addition:** Students gain a working knowledge of simple equations, which leads to linear equations plotted on the x,y grid in the 7th grade.	
1.1 Write and solve one-step linear equations in one variable. 1.2 Write and evaluate an algebraic expression for a given situation, using up to three variables. 1.3 Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process. 1.4 Solve problems manually by using the correct order of operations or by using a scientific calculator.	**1.1 As stated, in addition:** Equations are solved as simple formulae and ratios. The concept of slope, previously described as whole numbers, now is described with fractions. 1.2 and 1.3 are addressed in lesson block #IV mentioned above. 1.4 is addressed in lesson block #III mentioned above. Perimeter and Area problems make use of several variables; and mathematical sentences are written in context of business math where students apply simple interest formulas.	
2.0 Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions:	**2.0 As stated.**	
2.1 Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches). 2.2 Demonstrate an understanding that *rate* is a measure of one quantity per unit value of another quantity. 2.3 Solve problems involving rates, average speed, distance, and time.	**2.1-2.3 As stated.**	
3.0 Students investigate geometric patterns and describe them algebraically:	**3.0 As Stated, in addition:** 6th grade students learn simple area and perimeter formulas. They also learn some of the Euclidian laws of basic geometric shapes, such as angle a + angle b + angle c = 180 degrees.	
3.1 Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = 1/2bh$, $C = pd$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively). 3.2 Express in symbolic form simple relationships arising from geometry.	**3.1. As stated.** 3.2 This is introduced in lesson block #V mentioned above.	

Measurement and Geometry	The study of the properties of basic geometrical shapes was introduced in the 5th grade Freehand Geometry Block where students learned of parallel lines, complementary angles, acute angles, right angles, etc. These concepts are reviewed and developed in the 6th grade.	
1.0 Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:	**1.0 As stated.**	
1.1 Understand the concept of a constant such as p; know the formulas for the circumference and area of a circle. 1.2 Know common estimates of p (3.14; 22/7) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements. 1.3 Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.	**1.1-1.2 As stated, in addition:** The students learn: the development of pi, both pictorially and arithmetically; computation and construction of area, circumference, radius, diameter, angles, arcs and chords of a circle. **1.2-1.3 As stated, in addition:** Students learn of: square measure for area (pictorially and arithmetically); geometric drawing with compass, ruler and protractor; constructions of various polygons using different methods and materials; names and shapes of basic geometric polygons in 2 and 3 dimensions; computation of perimeters of polygons; application and manipulation of simple geometrical formulae; computation of areas of parallelograms, triangles, squares and rectangles	
2.0 Students identify and describe the properties of two-dimensional figures:	**2.0 As stated.**	
2.1 Identify angles as vertical, adjacent, complementary, or supplementary and provide descriptions of these terms. 2.2 Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle. 2.3 Draw quadrilaterals and triangles from given information about them (e.g., a quadrilateral having equal sides but no right angles, a right isosceles triangle).	**2.1-2.3 As stated, in addition:** Students learn construction with compass and straight edge of polygons, angles, perpendicular bi- sectors and parallel lines. They are introduced to concepts and diagrams of parallel lines, complementary angles, supplementary angles, corresponding angles, interior angles of a triangle, quadrilaterals, right and oblique prisms. The history of geometry and earth measure is discussed.	

Statistics, Data Analysis, and Probability		
1.0 Students compute and analyze statistical measurements for data sets:	**1.0 As stated.**	
1.1 Compute the range, mean, median, and mode of data sets. 1.2 Understand how additional data added to data sets may affect these computations of measures of central tendency. 1.3 Understand how the inclusion or exclusion of outliers affects measures of central tendency. 1.4 Know why a specific measure of central tendency (mean, median, mode) provides the most useful information in a given context.	**1.1-1.4 As stated, in addition:** In the context of business mathematics there is use of measures of central tendency (range, mean, median, and mode). Students compile data in various forms of representation - graphs, distribution curves, etc. In the course of this study they learn the strengths and weaknesses of mean, median, and mode as ways of interpreting the data.	
2.0 Students use data samples of a population and describe the characteristics and limitations of the samples:	**2.0 As stated.**	
2.1 Compare different samples of a population with the data from the entire population and identify a situation in which it makes sense to use a sample. 2.2 Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population. 2.3 Analyze data displays and explain why the way in which the question was asked might have influenced the results obtained and why the way in which the results were displayed might have influenced the conclusions reached. 2.4 Identify data that represent sampling errors and explain why the sample (and the display) might be biased. 2.5 Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.	**2.1-2.5 As stated.**	
3.0 Students determine theoretical and experimental probabilities and use these to make predictions about events:	**3.0 As stated.**	
3.1 Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome. 3.2 Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven). 3.3 Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if *P* is the probability of an event, 1- *P* is the probability of an event not occurring. 3.4 Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following another, in independent trials, is the product of the two probabilities. 3.5 Understand the difference between independent and dependent events.	**3.1-3.5 As stated.**	

Mathematical Reasoning		
1.0 Students make decisions about how to approach problems:	**1.0 As stated, in addition:** Students work word problems involving measurements: time, linear, liquid, weight and money.	
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns. 1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed. 1.3 Determine when and how to break a problem into simpler parts.	**1.1 As stated.** **1.2 As stated.** **1.3 As stated.**	
2.0 Students use strategies, skills, and concepts in finding solutions:	**2.0 As Stated.**	
2.1 Use estimation to verify the reasonableness of calculated results. 2.2 Apply strategies and results from simpler problems to more complex problems. 2.3 Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques. 2.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning. 2.5 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work. 2.6 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy. 2.7 Make precise calculations and check the validity of the results from the context of the problem.	**2.1 As stated, in addition:** Students mastery of the four basic processes of math includes ability to do long division using estimation and rounding. **2.2 As stated.** **2.3 As stated.** **2.4 As stated.** **2.5 As stated, in addition:** Students extract pertinent data from word problems and apply calculation skills to develop answer. **2.6 As stated.** **2.7 As stated, in addition:** Students use pencil and paper to complete mathematical calculations, demonstrating accuracy of method, format, and answer.	
3.0 Students move beyond a particular problem by generalizing to other situations:	**3.0 As stated.**	
3.1 Evaluate the reasonableness of the solution in the context of the original situation. 3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems. 3.3 Develop generalizations of the results obtained and the strategies used and apply them in new problem situations.	**3.1-3.3 As stated.**	

Grade Six
Science Content Standards

California State Standards	Journey School Alignment	Remarks
Focus on Earth Science	There are three main lesson science blocks that are taught in the 6th grade year (a main lesson block consists of two hours every morning, five days per week; a four week block would be the equivalent of 40+ instruction hours). Additionally, there are two weekly science classes in Earth Science and Geography which integrate with the studies presented in these blocks. Topics covered are: 4 weeks Introduction to Astronomy 4 weeks Mineralogy and Geology 4 weeks Introduction to Physics (Heat, Light, and Sound)	
Plate Tectonics and Earth's Structure		
1. Plate tectonics accounts for important features of Earth's surface and major geologic events. As a basis for understanding this concept: a. Students know evidence of plate tectonics is derived from the fit of the continents; the location of earthquakes, volcanoes, and midocean ridges; and the distribution of fossils, rock types, and ancient climatic zones. b. Students know Earth is composed of several layers: a cold, brittle lithosphere; a hot, convecting mantle; and a dense, metallic core. c. Students know lithospheric plates the size of continents and oceans move at rates of centimeters per year in response to movements in the mantle. d. Students know that earthquakes are sudden motions along breaks in the crust called faults and that volcanoes and fissures are locations where magma reaches the surface. e. Students know major geologic events, such as earthquakes, volcanic eruptions, and mountain building, result from plate motions. f. Students know how to explain major features of California geology (including mountains, faults, volcanoes) in terms of plate tectonics. g. Students know how to determine the epicenter of an earthquake and know that the effects of an earthquake on any region vary, depending on the size of the earthquake, the distance of the region from the epicenter, the local geology, and the type of construction in the region.	**1a-g As stated, in addition:** Topics taught in *Mineralogy and Geology* include: • How Volcanoes are formed and how they shape the earth. First introduction to plate tectonics. • Pan Gaia-One Continent. The Earth's molten core, mantle and lithosphere. Further study of plate tectonics and continental drift. • The Circle of Fire on the Pacific Rim: The Ring of Volcanoes and the tectonic plates. • Plate Tectonics and Earthquakes; the Earth's mantle, fault lines and fissures. • How mountains are formed; folds, faults, slips, erosion; the strata in outcroppings.	

Shaping Earth's Surface		
2. Topography is reshaped by the weathering of rock and soil and by the transportation and deposition of sediment. As a basis for understanding this concept: a. Students know water running downhill is the dominant process in shaping the landscape, including California's landscape. b. Students know rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns. c. Students know beaches are dynamic systems in which the sand is supplied by rivers and moved along the coast by the action of waves. d. Students know earthquakes, volcanic eruptions, landslides, and floods change human and wildlife habitats	**2 a-d As stated, in addition:** Topics in the *Mineralogy and Geology* include: • Granite: Quartz, Feldspar and Mica: From mountain range to sandy beach. Watersheds and erosion. The weathering of mountain ranges; how soil is formed; water transport, etc. • Sedimentary rock and metamorphic rock. • Specific landforms (e.g., glaciers, volcanoes, icebergs). • Wind and water currents. Free hand drawings of continents and bodies of water.	
Heat (Thermal Energy) (Physical Science)		
3. Heat moves in a predictable flow from warmer objects to cooler objects until all the objects are at the same temperature. As a basis for understanding this concept: a. Students know energy can be carried from one place to another by heat flow or by waves, including water, light and sound waves, or by moving objects. b. Students know that when fuel is consumed, most of the energy released becomes heat energy. c. Students know heat flows in solids by conduction (which involves no flow of matter) and in fluids by conduction and by convection (which involves flow of matter). d. Students know heat energy is also transferred between objects by radiation (radiation can travel through space)	**3 a-d As stated, in addition:** Topics in *Physics (Heat)* include: • Sources and nature of heat energy. • Changes of volume by heating of solids, liquids, gases. • Using the thermometer of the senses from touch to sight. • Experiments in expansion and contraction. • Electromagnetic nature of heat. The transfer and transmission of heat; radiation, conduction and convection.	
Energy in the Earth System		
4. Many phenomena on Earth's surface are affected by the transfer of energy through radiation and convection currents. As a basis for understanding this concept: a. Students know the sun is the major source of energy for phenomena on Earth's surface; it powers winds, ocean currents, and the water cycle. b. Students know solar energy reaches Earth through radiation, mostly in the form of visible light. c. Students know heat from Earth's interior reaches the surface primarily through convection. d. Students know convection currents distribute heat in the atmosphere and oceans. e. Students know differences in pressure, heat, air movement, and humidity result in changes of weather.	**4.0 As stated, in addition:** Topics in *Astronomy, Geography, Earth Science* and *Physics* include: • The Sun, Earth tilt, and Seasons. • How winds and weather arise through the interaction and convection currents of heat and cold air masses, ocean currents, rotation and tilt of the earth, etc. • Fahrenheit and centigrade thermometers. • Energy transfer to the Earth. • Convection, wind and water currents. • Heat and atmospheric expansion. • Evaporation and condensation. • Comparison and contrast of climates. • Meridians and parallels of latitude. Convection of magma is discussed in context of plate tectonics.	

Ecology (Life Science)	The current 6th grade study of Ecology was preceded by 5th grade botany, in which some content standards were taught and will be reviewed in 6th grade for grade level understanding. The 5th grade study included: the whole system concept of environment (ecosystem); photosynthesis and the exchange of energies within the system (5a – below); the hierarchy of organisms and their functions within the ecosystem (5b, 5c, 5d); and the resources needed to sustain the system (5e). Actual chemical formulas are presented in the 7th grade *Introduction to Chemistry*.	
5. Organisms in ecosystems exchange energy and nutrients among themselves and with the environment. As a basis for understanding this concept: a. Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs. b. Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment. c. Students know populations of organisms can be categorized by the functions they serve in an ecosystem. d. Students know different kinds of organisms may play similar ecological roles in similar biomes. e. Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.	**5.a-e As stated, in addition:** Topics in 6th grade *Earth Science* now include: • Comparisons and contrasts of various climates. • Comparisons and contrasts of various vegetation (e.g., tundra, grasslands, deserts). • Biotic zones. • The limestone cycle of the Earth; how seashells get to the mountain tops; intrusion of the sea on continents; ancient sea beds in North America and throughout the world; calcium structures. The formation of caves; dissolution and redeposit of lime through the acidic action of air and water.	
Resources		
6. Sources of energy and materials differ in amounts, distribution, usefulness, and the time required for their formation. As a basis for understanding this concept: a. Students know the utility of energy sources is determined by factors that are involved in converting these sources to useful forms and the consequences of the conversion process. b. Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable. c. Students know the natural origin of the materials used to make common objects	**6.a-c As stated, in addition:** Topics in 6th grade *Earth Science* and *Mineralogy and Geology* now include: • The sources of heat and warmth, including burning of fuels. • Quartz: semiconductors, sand and glass, industrial manufacture. • Oil, petroleum and coal; how they are formed, how they are used. • The metals of the Earth and their uses: iron, copper, zinc, lead, etc. • Precious gems. • Limestone, chalk, marble and concrete.	

Investigation and Experimentation		
7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will: a. Develop a hypothesis. b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data. c. Construct appropriate graphs from data and develop qualitative statements about the relationships between variables. d. Communicate the steps and results from an investigation in written reports and oral presentations. e. Recognize whether evidence is consistent with a proposed explanation. f. Read a topographic map and a geologic map for evidence provided on the maps and construct and interpret a simple scale map. g. Interpret events by sequence and time from natural phenomena (e.g., the relative ages of rocks and intrusions). h. Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of trees, a stream, a hill slope)	**7.a-h As stated, in addition:** Scientific hypotheses are developed. For example, in *Mineralogy*, students hypothesize geographic and geologic relationship of minerals, and study maps to test their hypotheses. Appropriate equipment is used. For example, students use different lenses in Mineralogy and Astronomy. Classifications are made. For example, igneous, sedimentary and metamorphic rocks are classified. Crystals and minerals are observed, classified by structure, and tested by Moh's hardness scale. Students write reports, give oral presentations, create appropriate drawings, work with maps, read tabulations, and read cycle and strata diagrams. Students take nature walks; they observe, sketch, describe, and interpret what they have seen.	
	Additionally, students have acquired a working knowledge of and vocabulary for the following subject areas, (in main lesson book work): • **Acoustics:** Natural sounds, pitch, overtones, musical instruments and timbre, the working of the human larynx, Doppler effect, chladni's sound figures, speed of sound in various media. • **Magnetism:** Positive and negative poles; attraction and repulsion; magnetic field of the earth; types of magnets; magnetic force through various substances; electromagnetism. • **Light and Optics:** Nature of light; reflection and refraction; how color comes into being in the atmosphere; dispersion through prisms, convex and concave lens, afterimages; experiment on how light is invisible and only seen when it reflects on a surface; the geometry of shadows upon surfaces; artistic study and observation of light, shade and contour; the scale of light and darkness; Primary, Secondary and Tertiary colors. • **Astronomy:** Understanding of the movement of celestial objects (including visible planets and outer planets as well as comets and meteors, from a geocentric point of view); the movement of and relationship of the sun, moon, other planets and their placement in the solar system; and knowledge of the constellations visible in the night skies of the northern and southern hemispheres.	