Pacing Guide 2010-2011
Subject: EARTH SCIENCE
Grade Level: 9-12

Grading Period : First Quarter **5/10 ED SPARKS**

Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
20 Days (8/9-9/1)	State Standard 1: The Earth's Place in the Universe (The Solar System). Astronomy and planetary exploration reveal the solar system's structure, scale, and change over time.	Textbook: Earth Science (Glencoe 2007) Textbook Page Numbers			
1 day (8/9)	1a. The differences and similarities among the Sun, the terrestrial planets, and the gas planets may have been established during the formation of the Solar System.	578, 793-797	Review Worksheet – State Standard #1 (pg 1)	Quiz: State Standard 1a	
3 days (8/10-8/12)	1b. Evidence from Earth and moon rocks indicates that the Solar System was formed from a nebular cloud of dust and gas 4.6 billion years ago.	793-797	Review Worksheet – State Standard #1 (pg 2-8)	Quiz: State Standard 1b	
4 days (8/12-8/18)	1c. Evidence from geological studies of the Earth and other planets suggests that the early Earth was very different from the Earth today.	387-388, 553-556, 570-571, 577-579, 580-583, 584-588, 589-593	Review Worksheet – State Standard #1 (pg 9-18)	Quiz: State Standard 1c	
3 days (8/19-8/23)	1d. Evidence indicates that the planets are much closer to the Earth than the stars are.	775-779, 798-799, 813-820, 921	Review Worksheet – State Standard #1 (pg 19-26)	Quiz: State Standard 1d	

4 days (8/24-8/27)	1e. The Sun is a typical star and is powered by nuclear reactions, primarily the fusion of hydrogen to form helium.	805, 809-810, 821-825, 859	Review Worksheet – State Standard #1 (pg 27-37)	Quiz: State Standard 1e	
3 days (8/30-9/1)	1f. There is evidence for the dramatic effects that asteroid impacts have had in shaping the surface of planets and their moons an in the mass extinctions of life on Earth.	633-634, 754, 780-781	Review Worksheet – State Standard #1 (pg 37-42)	Quiz: State Standard 1f	
2 days (9/2-9/3)	Review of State Standard #1		Review Exam – State Standard #1	Exam-State Standard #1	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
12 days (9/7-9/22)	State Standard 2: The Earth's Place in the Universe (Stars, Galaxies, and the Universe) Earth-based and space-based astronomy reveal the structure, scale, and changes in stars, galaxies, and the universe over time.	Textbook: Earth Science (Glencoe 2007) Textbook Page Numbers			
2 days (9/7-9/8)	2a. The Solar System is located in an outer edge of the disc-shaped Milky Way galaxy, which spans 100,000 light years.	833-838	Review Worksheet – State Standard #2 (pg 1-4)	Quiz: State Standard 2a.	
1 day (9/9)	2b. Galaxies are made of billions of stars and compromise most of the visible mass of the universe.	833-838, 839-846	Review Worksheet – State Standard #2 (pg 5-7)	Quiz: State Standard 2b	
3 days (9/10-9/14)	2c. There is evidence indicating that all elements with an atomic number greater than lithium have been formed by nuclear fusion in stars.	821-825, 859	Review Worksheet – State Standard #2 (pg 8-14)	Quiz: State Standard 2c	
4 days (9/15-9/20)	2d. Stars differ in their life cycles and visual, radio, and X-ray telescopes have been used to collect data that reveal those differences.	812-820, 821-825	Review Worksheet – State Standard #2 (pg 15-23)	Quiz: State Standard 2d	
2 days (9/21-9/22)	Review of State Standard #2		Review Exam – State Standard #2	Exam-State Standard #2	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
6 days (9/23-9/30)	Investigation and Experimentation: Scientific progress is made by asking meaningful questions and conducting careful investigations.	Textbook: Earth Science (Glencoe 2007)			
3 days (9/23-9/27)	1a. Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.		Laboratory: Weather and Data Collection	Quiz: Data Collection and Interpretation	
3 days (9/28-9/30)	1b. Identify and communicate sources of unavoidable experimental error.		Laboratory: Statistical Variation in Data	Quiz:Random Error	
5 days (10/1-10/7)	Review for Quarter 1 Standards-Based Interim Assessment. State Standard 1: The Solar System State Standard 2: Stars, Galaxies and the Universe Investigation and Experimentation 1a. Tools and Technology 1b. Identify and communicate sources of unavoidable experimental error	<u>Textbook Page Numbers</u> 771,801 829, 855 858-861	Review Exam – Quarter 1 The Astronomy and Cosmology Reporting Cluster		Quarter 1 Standards-Based Interim Assessment: State Standards 1 & 2: Astronomy and Cosmology I & E 1a-1b

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Pacing Guide 2010-2011
Subject:Earth: Science
Grade Level: 9-12

Grading Period: Second Quarter

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
16 days (10/12-11/2)	State Standard 3: Dynamic Earth Processes (Plate Tectonics) Plate tectonics operating over time has changed the patterns of land, sea, and mountains on the Earth's surface.	Textbook: Earth Science (Glencoe 2007) Textbook Page Numbers			
3 days (10/12-10/14)	3a. Students know features of the ocean floor (magnetic patterns, age, and sea-floor topography) provide evidence of plate tectonics.	448-454, 455-459, 464-465, 469, 546	Review Worksheet – State Standard 3a: Seafloor Spreading	Quiz: State Standard 3a	
3 days (10/15-10/19)	3b. Students know the principal structures that form at the three different kinds of plate boundaries.	455-459, 460-463, 478-479, 480-487, 538-534, 535-539	Review Worksheet – State Standard 3b: Plate Boundaries	Quiz: State Standard 3b	
3 days (10/20-10/22)	3c. Students know how to explain the properties of rocks based on the physical and chemical conditions in which they formed, including plate tectonic processes.	99-106, 107-115, 118-119, 121-127, 128-141, 144-145, 147-148, 602, 606, 613, 626	Review Worksheet – State Standard 3c: The Rock Cycle	Quiz: State Standard 3c	
2 days (10/25-10/26)	3d. Students know why and how earthquakes occur and the scales used to measure their intensity and magnitude.	455-459, 495-499, 500-504, 505-510	Review Worksheet – State Standard 3d: Earthquakes	Quiz: State Standard 3d	
3 days (10/27-10/29)	3e. Students know there are two kinds of volcanoes: one kind with violent eruptions producing steep slopes and the other kind with voluminous lava flows producing gentle slopes.	471-475, 480-487, 488-489, 490, 492-493, 547	Review Worksheet – State Standard 3e: Volcanoes	Quiz: State Standard 3e	
2 days (10/31-11/2)	Review of State Standard #3		Review Exam – State Standard #3	Exam – State Standard #3	

Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
8 days (11/3-11/15)	State Standard #4: Solar Energy Enters, Heat Escapes Energy enters the Earth system primarily as solar radiation and eventually escapes as heat.	Textbook: Earth Science (Glencoe 2007) Textbook Page Numbers			
2 days (11/3-11/4)	4a. The Earth's Energy. Students know the relative amount of incoming solar energy compared with Earth's internal energy and the energy used by society.	275-277, 578-579, 683-689, 690-697, 698	Review – State Standard #4 Worksheet: State Standard #4a Earth's Energy (pg 1-10)	Quiz: State Standard 4a	
2 day (11/5-11/8)	4b. Solar Energy Budget. Students know the fate of incoming solar radiation in terms of reflection, absorption, and photosynthesis.	275-277, 296-297, 380, 683-684	Review – State Standard #4 Worksheet: State Standard #4b Solar Energy Budget (pg 11-13)	Quiz: State Standard 4b	
2 days (11/9-11/10)	4c. Greenhouse Effect. Students know the different atmospheric gases that absorb the Earth's thermal radiation and the mechanism and significance of the greenhouse effect.	272, 375-377, 380, 725-726	Review – State Standard #4 Worksheet: State Standard #4c Greenhouse Effect (pg 14-16)	Quiz: State Standard 4c	
2 days (11/12-11/15)	Review of State Standard #4		Review Exam – State Standard #4	Exam – State Standard #4	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
12 days (11/16-12/7)	State Standard 5: Ocean and Atmospheric Convection The heating of the Earth's surface and atmosphere by the Sun drives convection currents within the atmosphere and oceans, producing winds and ocean currents.	Textbook: Earth Science (Glencoe 2007) <u>Textbook Page Numbers</u>	Review – State Standard #5 Ocean and Atmospheric Convection		
2 days (11/16-11/17)	5a. Convection Currents. Differential heating of the Earth results in circulation patterns in the atmosphere and oceans that globally distribute heat.	299-301, 305-307, 403-405, 411	Worksheet: State Standard #5a: Convection Currents (pg 1-3)	Quiz: State Standard #5a	
2 days (11/18-11/19)	5b. The Coriolis Effect. The rotation of the Earth causes the Coriolis Effect. This produces the circular motions of ocean currents and air in pressure centers.	305-311, 341-343, 404	Worksheet: State Standard #5b: The Coriolis Effect (pg4-6)	Quiz: State Standard #5b	
1 days (11/22)	5c. Temperature Inversions. The origin and effects of temperature inversions.	281, 284, 296	Worksheet: State Standard #5c: Temperature Inversions (pg 7-10)	Quiz: State Standard #5c	
3 days (11/23-11/29)	5d. Ocean Currents. Properties of ocean waters, such as temperature and salinity, can be used to explain the layered structure of the oceans, the generation of horizontal and vertical ocean currents, and the geological distribution of marine organisms.	392-398, 404-407	Worksheet: State Standard #5d: Ocean Currents (pg 11-14)	Quiz: State Standard #5d	

1 day (11/30)	5e. Rain forests and deserts are distributed in specific bands at specific latitudes.	364-365	Worksheet: State Standard #5: Rain Forests and Deserts (pg 15-16)	Quiz: State Standard #5e	
3 days (12/1-12/3)	Review of State Standard #5		Review Exam – State Standard #5	Exam – State Standard #5	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
1 day (12/6)	Investigation and Experimentation. Scientific progress is made by asking meaningful questions and conducting careful investigations. 1c. Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions. 1f. Distinguish between hypothesis and theory as scientific terms. 1i. Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).	Textbook: Earth Science (Glencoe 2007) <u>Textbook Page Numbers</u> 141, 163, 175, 826-827 11, 19, 25, 754, 780 12, 329-333, 338-339, 396-398, 553-556, 557-561, 564-565, 570-571, 793-797		Lab Report Lab Report Lab Report	
9 days (12/7-12/17)	Review for Quarter 2 Standards-Based Interim Assessment State Standard 3: Plate Tectonics State Standard 4: Solar Energy and Heat State Standard 5: Ocean and Atmospheric Convection Investigation and Experimentation 1c. Sources of Error 1f. Theory vs. Hypothesis 1i. Science and Time Intervals	 467-469, 491-493,519-521, 543-545, 546-549 295-297, 381-383 325-327, 381-383	Review Exam – Quarter 2 State Standard 3: Plate Tectonics State Standard 4: Solar Energy and Heat State Standard 5: Ocean and Atmospheric Convection Investigation and Experimentation 1c. Sources of Error 1f. Theory vs. Hypothesis 1i. Science and Time Intervals		Quarter 2 Standards-Based Interim Assessment: Standards 3: Plate Tectonics 4: Solar Energy 5: Ocean and Atmospheric Convection

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Pacing Guide 2010-2011
Subject: Earth Science
Grade Level: 9-12

Grading Period: Third Quarter **DRAFT 5/10 ED SPARKS**

Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
10 days (1/6-11/19)	State Standard 6: Energy in the Earth System (Climate and Weather) Climate is the long-term average of a region's weather an depends on many factors.	Textbook: Earth Science (Glencoe 2007) Textbook Page Numbers	Review – State Standard #6 Weather and Climate		
2 days (1/6-1/7)	6a. Weather (in the short run) and climate (in the long run) involve the transfer of energy into and out of the atmosphere.	275-277, 299-304, 305-311, 359-363	Worksheet: State Standard #6a: Energy Transfer in Air and Water (pg 1-5)	Quiz: State Standard #6a	
3 days (1/10-1/12)	6b. Climate is affected by latitude, elevation, topography, and proximity to large bodies of water and cold or warm ocean currents.	361-363, 364-368, 411	Worksheet: State Standard #6b: The Effect of Geography on Climate (pg 6-10)	Quiz: State Standard #6b	
2 days (1/13-1/14)	6c. The Earth's climate has changed over time, corresponding to changes in the Earth's geography, atmospheric composition, and other factors, such as solar radiation and plate movement.	369-374, 375-377, 380, 382	Worksheet: State Standard #6c: Changes in the Earth's Climate over Time (pg 11-15)	Quiz: State Standard #6c	
3 days (1/18-1/19)	Review of State Standard #6	295-297, 325-327, 381-383	Review Exam – State Standard #6	Exam – State Standard #6	

Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
9 days (1/20-1/31)	State Standard 7: Biogeochemical Cycles Each element on the Earth moves among reservoirs, which exist in the solid earth, in oceans, in the atmosphere, and within and among organisms as part of a biogeochemical cycle.	Textbook: Earth Science (Glencoe 2007) <u>Textbook Page Numbers</u>	Review – State Standard #7 Biogeochemical Cycles		
2 days (1/20-1/21)	7a. The carbon cycle involves photosynthesis and respiration. The nitrogen cycle involves nitrogen fixation.	CA9-CA14, 377, 664-665, 668	Worksheet: State Standard #7a: Carbon/Nitrogen Cycle (pg 1-3)	Quiz: State Standard #7a	
2 days (1/24-1/25)	7b. The global carbon cycle involves the different physical and chemical forms of carbon in the atmosphere, oceans, biomass, fossil fuels, and the movement of carbon among these reservoirs.	CA9-CA14, 272, 375-377, 380, 686-688, 696-697, 725-726	Worksheet: State Standard #7b: The Global Carbon Cycle (pg 4-11)	Quiz: State Standard #7b	
2 days (1/26-1/27)	7c. The movement of the elements (matter) among reservoirs is driven by the Earth's internal and external sources of energy.	CA9-CA14, 285, 290-291	Worksheet: State Standard #7c: Energy in Biogeochemical Cycles (pg 12-16)	Quiz: State Standard #7c	
3 days (1/28-1/31)	Review of State Standard #7	CA9-CA14, 381-383	Review Exam – State Standard #7	Exam – State Standard #7	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
9 days (2/1-2/11)	State Standard 8: Structure and Composition of the Atmosphere Life has changes the Earth's atmosphere and changes in the atmosphere affect conditions for life.	Textbook: Earth Science (Glencoe 2007) <u>Textbook Page Numbers</u>	Review – State Standard #8 Structure and Composition of the Atmosphere		
2 days (2/1-2/2)	8a. Description of the Atmosphere. The thermal structure and chemical composition of the atmosphere.	271-274, 278-284, 285, 297	Worksheet: State Standard #8a: The Atmosphere (pg 1-9)	Quiz: State Standard #8a	
2 days (2/3-2/4)	8b. Changes in the Earth's Atmosphere. The composition of the Earth's atmosphere has evolved over geologic time and has been affected by outgassing of volcanoes, variations in carbon dioxide concentration, and the original introduction of atmospheric oxygen.	375-377, 380, 584-588, 725-726	Worksheet: State Standard #8b: Changes in the Atmosphere (pg 10-13)	Quiz: State Standard #8b	
2 days (2/7-2/8)	8c. The Ozone Layer. The ozone layer is located in the upper atmosphere and plays a role in absorbing ultraviolet radiation. The ozone layer can change both naturally and in response to human activity.	CA15-CA19, 273-274, 285, 284, 297, 726, 729	Worksheet: State Standard #8c: The Ozone Layer (pg 14-16)	Quiz: State Standard #8c	
3 days (2/9-2/11)	Review of State Standard #8	CA15-CA19, 295-297, 381-383, 597-599	Review Exam – State Standard #8	Exam – State Standard #8	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
9 days (2/14-2/28)	State Standard 9: California Geology The geology of California underlies the state's wealth of natural resources as well as its natural hazards.	Textbook: Earth Science (Glencoe 2007) <u>Textbook Page Numbers</u>	Review – State Standard #9 Structure and Composition of the Atmosphere		
2 days (2/14-2/15)	9a. Major Resources. The resources of major economic importance in California are related to California's geology.	CA4-CA8, 89-91, 111-113, 659-663, 673, 690-797	Worksheet: State Standard #9a: The Atmosphere (pg 1-9)	Quiz: State Standard #9a	
2 days (2/16-2/17)	9b. Hazards. The principal natural hazards in different California regions are based on California's geology.	162-166, 181-190, 220-221, 495-499, 511-515	Worksheet: State Standard #9b: Changes in the Atmosphere (pg 10-13)	Quiz: State Standard #9b	
2 days (2/22-2/23)	9c. Water. Fresh water is of vital importance to California's society. Its origin is based on California geology and there is a relationship between supply and need (demand).	CA4-CA8, 228-231, 234, 329-243, 249-257, 260, 669-675, 734	Worksheet: State Standard #9c: The Ozone Layer (pg 14-16)	Quiz: State Standard #9c	
3 days (2/24-2/28)	Review of State Standard #9.	CA4-CA8, 95, 177	Review Exam – State Standard #9	Exam – State Standard #9	

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Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
9 days (3/1-3/11)	Review for Quarter 3 Standards-Based Interim Assessment		Review Exam – Quarter 3		Quarter 3 Standards-Based Interim Assessment: Standards 6: Climate and Weather 7: Biogeo-chemical Cycles 8: The Atmosphere 9: California Geology
	State Standard 6: Climate and Weather	295-297, 381-383	State Standard 6: Climate and Weather		
	State Standard 7: Biogeochemical Cycles	CA9-CA14	State Standard 7: Biogeochemical Cycles		
	State Standard 8: Structure and Composition of the Atmosphere	295-297	State Standard 8: The Atmosphere		
	State Standard 9: California Geology	CA4-CA8	State Standard 9: California Geology		

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Pacing Guide 2010-2011
Subject: Earth Science
Grade Level: 9-12

Grading Period: Fourth Quarter

Approximate Time for Teaching Standards	Standard	Core Instructional Materials	Strategic Supplementary Materials	Assessment	
				Mat'ls	District
15 days (3/21-4/8)	Review for Earth Science State Standard Exam: Standards 1. The Solar System 2. Stars, Galaxies, and the Universe 3. Dynamic Earth Processes 4. Soalr Energy and Heat 5. Ocean and Atmospheric Convection 6. Climate and Weather 7. Biogeochemical Cycles 8. Structure and Composition of the Atmosphere 9. California Geology		2003-2007 California Standard Test Released Test Questions ExamGen California Standards-Based Exams Silver Valley High School Science Department Earth Science Review		
25 days (4/18-5/26)	Research-based term paper (1000 words)		Access to internet		

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