

9th Grade Earth Science – SDUSD

			Lecture	Relevant standard	Lab	EG Resources	Other
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Week 1

Day 1	T	<ul style="list-style-type: none"> • Class • Lab procedures • Safety 					
Day 2	W				<ul style="list-style-type: none"> • Measurement 		
Day 3	Th				<ul style="list-style-type: none"> • How to: Writing • How to: Math 		
Day 4	F				<ul style="list-style-type: none"> • Text book • What to read • How to read 		<ul style="list-style-type: none"> • Quiz • HW

Week 2

Day 5	M	<ul style="list-style-type: none"> • Homework grading rubric • Homework chart and metric • SI units • The scientific method • Experimental error 			<ul style="list-style-type: none"> • Concept TBA <p><i>Penny / water drop</i></p>		
Day 6	T	<ul style="list-style-type: none"> • Topo maps • Orienteering • Lat / long 					
Day 7	W	<ul style="list-style-type: none"> • Topo maps • Orienteering • Geologic maps 					

Day	8	Th	<ul style="list-style-type: none"> • Map work • Geo/topo/google earth 		dam		
Day	9	F	<ul style="list-style-type: none"> • gnomon 				Quiz

Week 3

Day	10	M	mass, vol, density; triple beam, grad cylinder				Lab Write-Up
Day	11	T	m, v, d cont'd; pressure, evap/ condensation, heat/ expand				
Day	12	W	atomic theory, states of matter, flame color, EM spectrum				
Day	13	Th	chem exploratorium; ion, isotopes, chem bonds; exo vs. endo rxns, acid/base pH, distill, h2o cycle				
Day	14	F			distillation of wood		Quiz

Week 4

Day	15	M	types of energy (magnetism), history of energy, fossil fuels, kinetic theory				
Day	16	T	types of energy explor. Grav mag elect chem potential/kinetic, nuclear, kinetic theory, heat/ expand, pressure				
Day	17	W	probes; magnetic (force) field strength				
Day	18	Th	energy transfer exploratorium; radiation, convection, conduction				

Day	19	F	Fly sky lanterns, calc mass, density of 20 deg C vs hot air, calc lifting power				Quiz
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Week 5

Day	20	M	3c - Seafloor features	Students know how to explain the properties of rocks based on the physical and chemical conditions in which they formed, including plate tectonic processes.			
Day	21	T			Earth's magnetic field		Test 1 Mod I/E
Day	22	W			Seafloor magnetism-stripes-age		
Day	23	Th	3a - Evidence for plate tectonic theory	Students know features of the ocean floor (magnetic patterns, age, and sea-floor topography) provide evidence of plate tectonics.			
Day	24	F			Mantle convection, density, continental buoyancy, drift/jig saw		Quiz

Week 6

Day	25	M	3b - 3 boundaries/ principal structures	Students know the principal structures that form at the three different kinds of plate boundaries.			
Day	26	T			plate tectonic theory - pancakes / clay, seafloor topography		
Day	27	W	3c - physics/chem -rx vs. tectonic settings	(see day 20)			

Day	28	Th			Crystallization; solution chem, fractionation/differentiation		
Day	29	F			rx lab-minerals-tectonic settings; rock cycle		Quiz

Week 7

Day	30	M	3d - earthquakes	Students know why and how earthquakes occur and the scales used to measure their intensity and magnitude.			
Day	31	T			earthquake machine (sdsu / schumacher lab)		
Day	32	W			seismograph-Richter/Mercalli; epicenters		
Day	33	Th			sed dep-strata/types-age relation(layers/cross-cutting); fault types		
Day	34	F	3e - volcanoes	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.			Quiz

Week 8

Day	35	M			viscosity/trapped gas (CO2)/bubbles/release pressure; model vic		
Day	36	T			vlc continued		ongoing
Day	37	W					ongoing (data/Scripps)
Day	38	Th			geo timeline / plate tectonic theory		

Day	39	F	intro				Quiz
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Week 9

Day	40	M			Exploratorium of Review items		
Day	41	T	4a - ... PP1	Students know the relative amount of incoming solar energy compared with Earth's internal energy and the energy used by society.			Test 2 (Mod 3)
Day	42	W			EM radiation		
Day	43	Th	4a - ... PP2	(see day 43)			
Day	44	F			energy storage, photosyn orgs (paleo/present); age fossil fuels		

Week 10

Day	45	M	4b - ... PP1, PP2	Students know the fate of incoming solar radiation in terms of reflection, absorption, and photosynthesis.			
Day	46	T			insolation/reradiation; energy balance modeling		
Day	47	W			photosyn (ongoing plant growth results/review-analyze data)		
Day	48	Th	4c - ... PP1, PP2	Students know the different atmospheric gases that absorb the Earth's thermal radiation and the mechanism and significance of the green-house effect.			
Day	49	F			temp-color; IR/UV lab		Quiz

Week 11

Day		M					
Day	50	T			gas (atmo), transmit (hi f) / absorb IR (lo f); humidity / greenhouse gases		
Day	51	W	intro				
Day	52	Th			heat		Test 3 (Mod 4)
Day	53	F	5a, PP1	Students know how differential heating of Earth results in circulation patterns in the atmosphere and oceans that globally distribute the heat.			

Week 12

Day	54	M			uneven heating - land/sea breeze box (match video); gas expand / contract		
Day	55	T	5a - ... PP2, PP3, PP4	(see day 53)			
Day	56	W			seasons; ocean heat redistribution; leap year		
Day	57	Th	5b - ... PP1, PP2	Students know the relationship between the rotation of Earth and the circular motions of ocean currents and air in pressure centers.			
Day	58	F			ocean / atmosphere circulation patterns; Coriolis		Quiz

Week 13

Day	59	M	5c - ... PP1, PP2	Students know the origin and effects of temperature inversions.			
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Day	69	T			SoCal seasonal air mass movements / weather / climate / geography		
Day	61	W	5d - ... PP1	Students know properties of ocean water, 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 geographic distribution of marine organisms.			
Day	62	Th			h2o specific heat, h2o properties		Quiz
Day	63	F					

Week 14

Day	64	M	5d - ... PP2, PP3				
Day	65	T			ocean stratification / biozones / phys-chem layering; ocean surface currents		
Day	66	W	5e - ...	Students know rain forests and deserts on Earth are distributed in bands at specific latitudes.			
Day	67	Th			rain forest / desert latitude distribution (bands)		
Day	68	F	6a - ... PP1	Students know weather (in the short run) and climate (in the long run) involve the transfer of energy into and out of the atmosphere.			Quiz

Week 15

Day	69	M			weather maps; why wind?		
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Day	70	T	6b - ... PP1, PP2	Students know the effects on climate of latitude, elevation, topography, and proximity to large bodies of water and cold or warm ocean currents.			Test 4 (Mod 5)
Day	71	W	6c - climate factors (lat, elev, etc)	Students know how Earth's climate has changed over time, corresponding to changes in Earth's geography, atmospheric composition, and other factors, such as solar radiation and plate movement.			
Day	72	Th	6c - ... PP1, PP2				
Day	73	F			climate change over geotime / factors		Quiz

Week 16

Day	74	M			climate change cont'd		
Day	75	T					ongoing
Day	76	W					ongoing
Day	77	Th	intro				Test 5 (Mod 6)
Day	78	F			systems / cycles		Quiz

Week 17

Day	79	M	7a - carbon cycle	Students know the carbon cycle of photosynthesis and respiration and the nitrogen cycle.			
Day	80	T			carbonate/ bicarbonate ions / co2 gas to caco3 (shells)		
Day	81	W	7a - nitrogen cycle				

Day	82	Th			nitrogen cycle		
Day	83	F	7b - ...	Students know the global carbon cycle: the different physical and chemical forms of carbon in the atmosphere, oceans, biomass, fossil fuels, and the movement of carbon among these reservoirs.			Quiz, MLK

Week 18

Day		M	MLK Holiday				
Day	84	T			carbon cycling / reservoirs		
Day	85	W			reservoirs cont'd		
Day	86	Th	7c - ...	Students know the movement of matter among reservoirs is driven by Earth's internal and external sources of energy.			
Day	87	F			photosyn/respiration; matter movement / energy		Quiz

Week 19

Day	88	M	Final Exam Week		Test 6 (mod 7) on cum. Final	ongoing lab work	
Day	89	T			matter movement / energy cont'd	final exam periods 1, 2	ongoing 3,4
Day	90	W				final exam periods 3,4	ongoing 5,6
Day	91	Th				final exam periods 5,6	ongoing 1,2
Day	92	F	intro, sci method				Quiz

Week 20

Day	93	M			geotimeline / chemistry		
Day	94	T			geotimeline / chem cont'd		

Day	95	W	8a - atmosphere	Students know the thermal structure and chemical composition of the atmosphere.			
Day	96	Th			ongoing		
Day	97	F			ongoing		Quiz

Week 21

Day	98	M	8b - evolution, earth's atmo	Students know how the composition of the Earth's atmosphere has evolved over geologic time and know the effect of outgassing, the variations of carbon dioxide concentration, and the origin of atmospheric oxygen.			
Day	99	T			ongoing		
Day	100	W			ongoing		
Day	101	Th	8c - ozone layer	Students know the location of the ozone layer in the upper atmosphere, its role in absorbing ultraviolet radiation, and the way in which this layer varies both naturally and in response to human activities.			Quiz
Day	102	F					

Week 22

Day		M	Washington Bir				
Day	102	T			ongoing		
Day	103	W			ongoing		

Day	104	Th	9a - intro	Students know the resources of major economic importance in California and their relation to California's geology.			Test 7 (mod 8)
Day	105	F			google earth		Quiz

Week 23

Day	106	M	9b	Students know the principal natural hazards in different California regions and the geologic basis of those hazards.			
Day	107	T			ongoing		
Day	108	W			ongoing		
Day	109	Th	9c - leap year	Students know the importance of water to society, the origins of California's fresh water, and the relationship between supply and need.			
Day	110	F			ongoing		Quiz

Week 24

Day	111	M			ongoing		
Day	112	T			ongoing		
Day	113	W			ongoing		
Day	114	Th			ongoing		
Day	115	F			ongoing		Quiz

Week 25

Day	116	M	intro pp1 pp2				
Day	117	T			pp1		Test 8 (mod 9)

Day	118	W			pp2		
Day	119	Th	1a, pp1, pp2	Students know how 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.			
Day	120	F			sol sys scale model outside		Quiz

Week 26

Day	121	M	1b, pp1 pp2	Students know the evidence from Earth and moon rocks indicates that the solar system was formed from a nebular cloud of dust and gas approximately 4.6 billion years ago.			
Day	122	T			radio dating		
Day	123	W	1c, pp1, pp2	Students know the evidence from geological studies of Earth and other planets suggests that the early Earth was very different from Earth today.			
Day	124	Th			ongoing		
Day	125	F	1c, pp3, pp4				Quiz

Week 27

Day	126	M			ongoing		
Day	127	T	1d pp1 pp2	Students know the evidence indicating that the planets are much closer to Earth than the stars are.			
Day	128	W			parallax		

Day	129	Th	1e	Students know the Sun is a typical star and is powered by nuclear reactions, primarily the fusion of hydrogen to form helium.			
Day	130	F			spectra		Quiz

Week 28

Day	131	M	1f pp1 pp2	Students know the evidence for the dramatic effects that asteroid impacts have had in shaping the surface of planets and their moons and in mass extinctions of life on Earth.			
Day	132	T			impacts		
Day	133	W			ongoing		
Day	134	Th					
Day	135	F			MWG model, parsec, AU, ly		Quiz

Week 29

Day	136	M	2b pp1 pp2 pp3	Students know galaxies are made of billions of stars and comprise most of the visible mass of the universe.			
Day	137	T			ongoing		
Day	138	W	2c pp1 pp3 pp4	Students know the evidence indicating that all elements with an atomic number greater than that of lithium have been formed by nuclear fusion in stars.			
Day	139	Th			fusion		

Day	140	F	2d	Students know that stars differ in their life cycles and that visual, radio, and X-ray telescopes may be used to collect data that reveal those differences.			Quiz
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Week 30

Day	141	M			star characteristics / classification		
Day	142	T			star life cycles		
Day	143	W					Test 10 (Mod 2)
Day	144	Th					
Day	145	F					

Week 31

Day	142	M					
Day	143	T					
Day	144	W					
Day	145	Th					
Day	146	F					