



**EARTHCOMM CORRELATION TO CALIFORNIA INTEGRATED
SCIENCE 1**

Correlation Key:
"X" = Coverage

Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept. Coverage in student edition and/or Teacher Edition supports the development of the concept

"XX" = In-depth Coverage

Primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept.

Earth's Dynamic Geosphere

Understanding Your Environment

Earth's Fluid Spheres

Earth's Natural Resources

Earth System Evolution

Standards that all students are expected to achieve in the course of their studies are unmarked. Standards that all students should have the opportunity to learn are marked with an asterisk (*).

Volcanoes

Pl. Tectonics

Earthquakes

Bedrock Geology

River Systems

Land Use Planning

Oceans

Weather

Cryosphere

Energy

Minerals

Water

Astronomy

Climate Change

Changing Life

INTEGRATED SCIENCE 1

Investigation and Experimentation

1. 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 four strands, students should develop their own questions and perform investigations. Students will:

a. 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.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
b. Identify and communicate sources of unavoidable experimental error.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
c. Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.	XX	X	X	X	X	XX	X	X	X	XX	X	X	X	X	X
d. Formulate explanations by using logic and evidence.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
e. Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
f. Distinguish between hypothesis and theory as scientific terms.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
g. Recognize the usefulness and limitations of models and theories as scientific representations of reality.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
h. Read and interpret topographic and geologic maps.	XX	XX	XX	XX	XX	XX	X	XX	X	XX	XX	X		X	X
i. 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).	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

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	Volcanoes	Pl. Tectonics	Earthquakes	Bedrock Geology	River Systems	Land Use Planning	Oceans	Weather	Cryosphere	Energy	Minerals	Water	Astronomy	Climate Change	Changing Life
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j. Recognize the issues of statistical variability and the need for controlled tests.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
k. Recognize the cumulative nature of scientific evidence.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
l. Analyze situations and solve problems that require combining and applying concepts from more than one area of science.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
m. Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.	XX	XX	XX	X	XX	XX	XX	XX	XX	XX	XX	X	XX	XX	
n. Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e. g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).	X	XX	X	X	X	X	XX	X	X	X	X	XX	X	XX	
INTEGRATED SCIENCE 1															
Earth Sciences															
Dynamic Earth Processes															
3. Plate tectonics operating over geologic time has changed the patterns of land, sea, and mountains on Earth's surface. As the basis for understanding this concept:															
a. <i>Students know</i> features of the ocean floor (magnetic patterns, age, and sea-floor topography) provide evidence of plate tectonics.	XX	XX											XX		
b. <i>Students know</i> the principal structures that form at the three different kinds of plate boundaries.	XX	XX											XX		
c. <i>Students know</i> how to explain the properties of rocks based on the physical and chemical conditions in which they formed, including plate tectonic processes.	X	XX	X	X									X	X	X

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d. <i>Students know</i> why and how earthquakes occur and the scales used to measure their intensity and magnitude.	XX												XX		
e. <i>Students know</i> 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.	XX	XX											XX		
f.* <i>Students know</i> the explanation for the location and properties of volcanoes that are due to hot spots and the explanation for those that are due to subduction.	XX		X										XX		X
Biogeochemical Cycles															
7. Each element on Earth moves among reservoirs, which exist in the solid Earth, in oceans, in the atmosphere, and within and among organisms as part of biogeochemical cycles. As a basis for understanding this concept:															
a. <i>Students know</i> the carbon cycle of photosynthesis and respiration and the nitrogen cycle.						X				XX		X		XX	X
b. <i>Students know</i> 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.	X	X		X		X		X		XX		X		XX	
c. <i>Students know</i> the movement of matter among reservoirs is driven by Earth's internal and external sources of energy.	XX	XX	X	X	X	X	XX	XX	X	XX	X	X	XX	X	X
d.* <i>Students know</i> the relative residence times and flow characteristics of carbon in and out of its different reservoirs.				X			X	X		XX			X	X	X
California Geology															
9. The geology of California underlies the state's wealth of natural resources as well as its natural hazards. As a basis for understanding this concept:															
b. <i>Students know</i> the principal natural hazards in different California regions and the geologic basis of those hazards.	XX	XX	XX	X	X	XX	X	XX	X	X	X	X			

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c. <i>Students know</i> the importance of water to society, the origins of California's fresh water, and the relationship between supply and need.	X			X	XX	X	X	X	X	X	X	XX		X	
d.* <i>Students know</i> how to analyze published geologic hazard maps of California and know how to use the map's information to identify evidence of geologic events of the past and predict geologic changes in the future.	XX	XX	XX	X	X	X	X	X	X	X	X	X			
BIOLOGY/LIFE SCIENCES															
Ecology															
6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:															
a. Students know biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats.															X
b. Students know how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in population size.															X
c. Students know how fluctuations in population size in an ecosystem are determined by the relative rates of birth, immigration, emigration, and death.															X
d. Students know how water, carbon, and nitrogen cycle between abiotic resources and organic matter in the ecosystem and how oxygen cycles through photosynthesis and respiration.															X
e. Students know a vital part of an ecosystem is the stability of its producers and decomposers.															X

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f. Students know at each link in a food web some energy is stored in newly made structures but much energy is dissipated into the environment as heat. This dissipation may be represented in an energy pyramid.															
g.* Students know how to distinguish between the accommodation of an individual organism to its environment and the gradual adaptation of a lineage of organisms through genetic change.															X
Evolution 8. Evolution is the result of genetic changes that occur in constantly changing environments. As a basis for understanding this concept:															
a. Students know how natural selection determines the differential survival of groups of organisms.															XX
b. Students know a great diversity of species increases the chance that at least some organisms survive major changes in the environment.															XX
e. Students know how to analyze fossil evidence with regard to biological diversity, episodic speciation, and mass extinction.															XX