

Investigating Earth Systems Correlation to Connecticut

Grades 5 - 8 Earth Science Content Standards

Correlation Key: "XX" In-depth Coverage = In-depth coverage of concept in student edition. "X" Coverage = Coverage in student edition and/or Teacher Edition supports the development of the concept.		Climate and Weather	Dynamic Planet	Energy Resources	Fossils	Materials and Minerals	Oceans	Rocks and Landforms	Soil
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CONTENT STANDARD 1: The Nature of Science

Students will experience an inquiry-based learning environment in which they are free to ask questions, seek information and validate explanations in thoughtful and meaningful ways.

Educational experiences in Grades 5 - 8 will assure that students:

Conduct scientific investigations, which generally involve the collection of relevant evidence, the use of logical reasoning and creativity in devising hypotheses and explanations to make sense of the evidence.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Identify and control variables in experiments.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Evaluate the strengths and weaknesses of claims, arguments or data.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Recognize that a variety of experimental designs and strategies can be developed to answer the same question.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Use appropriate technology as a tool in problem solving.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Accept the open-ended-ness of scientific inquiry and that scientific findings are not always definite or complete.	XX	XX	XX	XX	XX	XX	XX	XX	XX
Use scientific knowledge and ways of thinking in personal decision-making.	X	X	X	X	X	X	X	X	X

CONTENT STANDARD 2: The History of Science

Students will learn the evolution of scientific thought, how science has influenced culture and society, and how groups from many countries have contributed to history and science.

Educational experiences in Grades 5 - 8 will assure that students:

Recognize important contributions to the advancement of science, mathematics and technology that have been made by men and women in different cultures at different times.	X	X	X	X	X	X	X	X	X
Understand that scientific discoveries are influenced by technological demands, competition, controversy, world events, personalities and societal issues.	X	X	XX	X	XX	XX	X	X	X
Recognize that, throughout history, scientists and engineers have been considered valued contributors to society.	X	X	X	X	XX	XX	X	X	X
Recognize that, throughout history, it has been difficult for scientific innovators to break through the preconceptions of their time to reach conclusions which today seem obvious.	X	XX	X	X	X	X	X	X	X

CONTENT STANDARD 7: The Earth

Students will understand the processes and forces that shape the structure and composition of the Earth.

Educational experiences in Grades 5 - 8 will assure that students:

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Describe how sediments of sand and smaller particles (sometimes containing the remains of organisms) are buried and are cemented together by dissolved minerals and compacted to form solid rock again.				XX			XX	
Explain how rock buried deep enough may be reformed by pressure and heat into different kinds and minerals.		X					XX	
Recognize that some useful minerals are scarce and some exist in great quantities, but the ability to recover them is just as important as their abundance.					XX			
Recognize that the movement of heat and materials within the Earth causes earthquakes and volcanic eruptions.		XX					X	
Describe the formation and movement of glaciers.	XX						XX	
Use maps (e.g., topographic, hydrographic, highway) to identify land features and their locations.	X	XX	X		X	X	XX	X
Recognize that some changes in the Earth's surface, such as earthquakes and volcanic eruptions, are abrupt, while other changes happen very slowly (e.g. uplift and wearing down of mountains).	X	XX	X	XX	X	XX	XX	X
Explain how human activities (such as reducing the amount of forest cover, increasing the amount and variety of chemicals released into the atmosphere, and waste disposal) have altered the Earth's land, oceans and atmosphere.	X		XX		XX		X	

CONTENT STANDARD 8: Water

Students will understand the water cycle, including energy transfers, the distribution and characteristics of water, and its influences on human activity.

Educational experiences in Grades 5 - 8 will assure that students:

Recognize how the cycling of water in and out of the atmosphere plays an important role in determining climatic patterns and is responsible for constantly changing the phase and location of water.	XX					X		
Recognize that water falling to Earth flows over the surface as runoff and collects in ocean basins, rivers, lakes, icecaps and underground.	X					X		
Recognize that water stored underground (subsurface) and water stored above ground (surface) form a continuum, each supplying water to the other.								

CONTENT STANDARD 9: The Earth's Atmosphere

Students will understand the composition and structure of the atmosphere, including energy transfers, the nature of weather and climate, and the effect of the atmosphere on Earth's surface.

Educational experiences in Grades 5 - 8 will assure that students:

Describe air as a mixture of gases, including water vapor and other liquid and solid particles	XX							
Recognize that air exerts pressure and expands and contracts in relation to temperature.	XX							
Explain wind as a function of the unequal heating of the Earth's surface.	XX					X		
Know that water changes form as a function of energy transfer.	XX					X		

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Infer that water vapor condenses out of cooling air.	XX							
Create simple weather instruments to measure air pressure and humidity.	XX							
Identify sources of thunderstorms, tornadoes, hurricanes and winter storms, and describe their impact on human activities.	XX							
Infer that our atmosphere is dynamic and has patterns of weather systems.	XX							
Recognize that high pressure areas are usually associated with clear, dry weather and low pressure areas are often associated with precipitation.	XX							
Describe and explain the reasons for the distribution of climates around the world.	XX							

CONTENT STANDARD 10: The Universe

Students will understand that the Earth is a unique, dynamic member of the solar system, located in a galaxy within a changing universe.

Educational experiences in Grades 5 - 8 will assure that students:

Understand that, to people living on the Earth, the 24-hour period of rotation of the Earth makes it seem as though the sun, moon, planets and stars are orbiting the Earth once a day.								
recognize that the sun is a medium-sized star located near the edge of a disk-shaped galaxy of stars, that the universe contains many millions of galaxies, and that each galaxy contains many billions of stars.								
Describe the solar system as consisting of nine planets, different in size, composition and surface features, which all revolve around the sun in elliptical orbits.								
Understand that the moon's orbit around the Earth changes how much of the lighted portion of the moon can be seen from the Earth.								
Realize that the planets change their positions against the background of stars.								
Recognize that the mutual gravitational attraction of the Earth, moon and sun produces the ocean's tides.								
Understand that many artificial satellites now orbit the Earth and are used for a variety of purposes.								

CONTENT STANDARD 14: Science And Technology

Students will understand the relationships among mathematics, science and technology and the way they affect and are affected by society.

Educational experiences in Grades 5 - 8 will assure that students:

Investigate and describe human uses of renewable and nonrenewable re-sources (e.g., forests, fossil fuels).			XX		XX			
Explain interrelationships between science and technology (e.g., building a bridge, designing a better running shoe).	X	X	X	X	X	X	X	X
Describe how the use of technology can contribute to the solution of an individual or community problem (e.g., using oxygenated fuels to help reduce air pollution).	X	X	X	X	X	X	X	X

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Recognize that science and technology cannot solve every problem faced by society.	X	X	XX	X	XX	X	X	X
Describe how people use science and technology in their professions.	X	X	X	X	X	X	X	X
Identify and analyze ways in which advances in science and technology have affected each other and society.	X	X	X	X	X	X	X	X
Recognize that issues related to science, technology and society often are complex and involve risk/benefit trade-offs.	X	X	XX	X	XX	X	X	X
Understand that scientific advances may be misused and developed into technologies that have negative consequences.	X	X	XX	X	X	X	X	X
Identify technological advances that are reported in the media.	X	X	XX	X	X	X	X	X
Understand that engineers, architects and others who engage in design and technology use scientific knowledge to solve practical problems.	X	X	X	X	X	X	X	X

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