EarthComm Correlation to the Earth Science Curriculum Framework for Connecticut

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	G1	G2	G3	U1	U2	U3	F1	F2	F3	N1	N2	N3	E1	E2	E3
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 creative ways. Students also will understand that the processes, ways of knowing and conceptual foundations of science are interdependent and inextricably bound.** **Educational experiences in Grades 9 - 12 will assure that students:**															
Gather and synthesize information concerning a problem.	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**
Generate and revise hypotheses based upon empirical data and the requirements of logical reasoning.	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**
Interpret the results of experimentation using statistical reasoning.	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Critique scientific experiments or research by seeking out possible sources of bias in the design and analysis of data.	**X**	**X**	**XX**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**XX**
Suggest alternative ways of explaining data and criticize arguments in which data, explanations or conclusions are represented as the only ones worthy of consideration.	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**

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Prepare and present oral and written scientific reports that communicate in a logical sequence the process, results and validity of scientific experiments and research.	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**
CONTENT STANDARD 2: 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 the history of science.** **Educational experiences in Grades 9 - 12 will assure that students:**															
Recognize that many Western as well as non-Western cultures (e.g., Egyptian, Chinese, Hindu, Arabic, Mayan) have developed scientific ideas and solved human problems through technology.	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Recognize that changes in science usually occur as small modifications in existing knowledge and result in incremental advances in our understanding of the world and our ability to meet human needs and aspirations.	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

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Recognize that occasionally there are advances in science and technology that have important and long-lasting effects on science and society (e.g., the Copernican revolution; plate tectonics; biological evolution; germ theory; industrial revolution; technological revolution).	X	XX	X	X	X	X	X	X	X	X	X	X	X	X	XX
Recognize that the study of scientific explanations throughout history demonstrates how scientific knowledge changes and evolves over time, building on earlier knowledge.	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
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 9 - 12 will assure that students:**															
Illustrate how the formation, weathering, sedimentation and reformation of rock constitute a continuing “rock cycle.”	X	X	X	XX	X	X			X	X	X	X		X	X

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Explain that the lithosphere consists of separate plates that ride on a denser, hot, gradually deformable layer of the Earth that releases energy and brings new materials to the Earth's surface.	**X**	**XX**	**X**							**X**				**X**	
Explain that plate tectonics is supported by geophysical, structural and paleontological evidence	**X**	**XX**	**X**	**X**			**X**							**X**	**XX**
Describe how geological time can be determined using evidence from fossils, rock sequences and radiometric dating.	**X**	**XX**		**XX**					**X**	**X**			**X**	**X**	**XX**
Interpret geological features within the community and state (e.g., road cuts, rivers, shorelines).	**XX**	**X**	**XX**	**XX**	**XX**	**XX**			**X**	**XX**	**XX**	**X**			**X**
Explain interactions between the Earth's lithosphere, hydrosphere, atmosphere and biosphere.	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**
Analyze the costs, benefits, alternatives and consequences of natural resource exploration, development and consumption.	**X**			**X**						**XX**	**XX**	**XX**		**XX**	

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CONTENT STANDARD 8: Water **Students will understand the water cycle, including energy transfers, the distribution and characteristics of water, and its influences** **Educational experiences in Grades 9 - 12 will assure that students:**															
Recognize that the ocean is a complex system of important chemicals which cycle through other Earth systems over various periods of time.	**X**						**XX**	**X**		**X**		**X**		**X**	
Recognize that fresh water is limited in supply and can be depleted or polluted, becoming unavailable or unsuitable for life.					**X**	**XX**	**X**	**X**		**X**		**XX**			**X**
Explain interactions between water and other Earth systems (e.g., the biosphere, lithosphere and atmosphere).	**X**	**X**		**X**	**XX**	**X**	**XX**	**XX**	**XX**	**X**	**X**	**XX**		**X**	**X**
Recognize that water is an erosional force that can rapidly and slowly change the landscape.	**X**			**X**	**XX**	**X**	**X**	**X**	**X**			**X**			
Describe how the oceans absorb and release heat energy that moderates the Earth's climate.						**X**	**XX**	**X**	**X**	**X**				**XX**	
Describe how the physical and chemical properties of water affect the environment and life.	**X**				**X**		**X**		**X**	**X**		**X**		**X**	**X**

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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 human activity.** **Educational experiences in Grades 9 - 12 will assure that students:**															
Describe heat and energy transfer as they are related to radiation, conduction and convection/advection.	**X**	**XX**				**X**	**X**	**X**		**XX**			**X**		
Understand that, as water condenses, evaporates, melts or freezes, this heat energy transfer impacts weather phenomena.							**X**	**XX**	**X**					**X**	
Recognize and understand why rising air expands and decreases in temperature, while sinking air compresses and increases in temperature, and that this phenomenon has an impact on local weather and global climates.								**XX**						**X**	
Describe fronts as boundaries between air masses and recognize their association with different weather patterns.	**X**							**XX**							

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Explain the patterns and distributions of different climates as a function of the Earth's physical features (e.g., oceans and mountains) and latitude.						**X**		**X**						**XX**	**XX**
Explain how the inclination of the Earth's axis affects the seasons, amount of daylight, and the altitude of the sun in the sky.													**X**	**XX**	
Explain the impact on human activities of global phenomena, such as El Niño, global warming and the depletion of ozone in the atmosphere.	**X**	**X**					**XX**	**X**	**X**	**X**	**X**	**X**		**XX**	**X**
Discuss cyclone, hurricane, thunderstorm and tornado formation as both weather phenomena and vehicles for the transfer of heat energy.								**XX**							
Create weather forecasts from data collected from various sources, including classroom instruments, television, newspapers, NOAA radio and information from sources via computer and modem.							**X**	**X**							

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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** **Educational experiences in Grades 9 - 12 will assure that students:**															
Understand that the stars differ from each other in size, temperature and age, but they appear to be made up of the same elements that are found on the Earth and appear to behave according to the same physical principles.													**XX**		
State that on the basis of scientific evidence, the universe is expanding and is estimated to be well over 15 billion years old.													**XX**		
Describe how increasingly sophisticated technology is used to learn about the universe (e.g., visual, radio and X-ray telescopes).													**XX**		
Understand that mathematical models and computer simulations are used in studying evidence from many sources in order to form a more comprehensive scientific account of the universe.													**XX**		

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Recognize that orbiting instruments, such as the Hubble telescope, provide information about the universe that could not be gathered from the Earth's surface.													**XX**		
Recognize that the solar system is part of a constantly changing universe in which stars are born, change and die.													**XX**		
Understand that light from a star takes a very long time to reach the Earth and is actually a representation of its past location.													**XX**		
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** **Educational experiences in Grades 9 - 12 will assure that students:**															
Analyze benefits and limit costs and consequences involved in using technology or resources (e.g., X-rays, agricultural chemicals, natural gas reserves.	**X**				**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

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Analyze how the introduction of new technology has affected or could affect human activity (e.g., invention of the telescope, applications of modern telecommunications and bioengineering).	**X**	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Recognize that technological innovations (e.g., the automobile) may produce unanticipated problems of their own.					**X**	**X**				**X**	**X**	**X**			**X**
Apply their knowledge and understanding of chemical and physical interactions to explain present and anticipated technologies (e.g., lasers, ultrasound, superconducting materials, photocopy machines).	**XX**	**X**	**X**				**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**
Recognize that science and technology often develop faster than society can comprehend their ethical implications.	**X**	**X**	**X**				**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**
Explore the scientific and technological aspects of contemporary problems (e.g., issues related to nutrition, air quality, natural resources).	**XX**	**X**	**XX**		**X**	**XX**	**X**	**XX**	**XX**	**XX**	**XX**	**XX**	**X**	**XX**	**X**

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Understand that science strives to understand the natural world and seeks explanations for natural phenomena, while technology seeks solutions to human problems and needs.	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Understand that science, mathematics and technology are interdependent human endeavors with strengths and limitations.	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Recognize that technological problems often create a demand for new scientific knowledge, while new technologies make it possible for scientists to extend their research or to undertake entirely new lines of research.	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**