EarthComm Correlation to New York Science Standards

Correlation Key: "X" Coverage = Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept. "O" 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		
Standard	G1	G2	G3	U1	U2	U3	F1	F2	F3	N1	N2	N3	E1	E2	E3
STANDARD 1: Analysis, Inquiry, and Design: SCIENTIFIC INQUIRY:															
Key Idea 1: The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.															
S1.1 Formulate questions independently with the aid of references appropriate for guiding the search for explanations of everyday observations.															
S1.1a formulate questions about natural phenomena	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S1.1b identify appropriate references to investigate a question	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S1.1c refine and clarify questions so that they are subject to scientific investigation	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S1.2 Construct explanations independently for natural phenomena, especially by proposing preliminary visual models of phenomena															
S1.2a independently formulate a hypothesis	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S1.2b propose a model of a natural phenomenon	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S1.2c differentiate among observations, inferences, predictions, and explanations	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S1.3 Represent, present, and defend their proposed explanations of everyday observations so that they	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

	Earth's Dynamic Geosphere		Understanding Your Environment		Earth's Fluid Spheres			Earth's Natural Resources				Earth System Evolution			
can be understood and assessed by others.															
S1.4 Seek to clarify, to assess critically, and to reconcile with their own thinking the ideas presented by others, including peers, teachers, authors, and scientists.	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Key Idea 2: Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.															
S2.1 Use conventional techniques and those of their own design to make further observations and refine their explanations, guided by a need for more information.															
S2.1a demonstrate appropriate safety techniques	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S2.1b conduct an experiment designed by others	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S2.1c design and conduct an experiment to test a hypothesis	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S2.1d use appropriate tools and conventional techniques to solve problems about the natural world, including	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
-measuring															
-observing															
-describing															
-classifying															
-sequencing															
S2.2 Develop, present, and defend formal research proposals for testing their own explanations of common phenomena, including ways of obtaining needed observations and ways of conducting simple controlled experiments.															
S2.2a include appropriate safety procedures	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S2.2b design scientific investigations (e.g.,	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

	Earth's Dynamic Geosphere		Understanding Your Environment		Earth's Fluid Spheres			Earth's Natural Resources				Earth System Evolution			
observing, describing, and comparing; collecting samples; seeking more information, conducting a controlled experiment; discovering new objects or phenomena; making models)															
S2.2c design a simple controlled experiment	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S2.2d identify independent variables (manipulated), dependent variables (responding), and constants in a simple controlled experiment	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S2.2e choose appropriate sample size and number of trials	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S2.3 Carry out their research proposals, recording observations and measurements (e.g., lab notes, audiotape, computer disk, videotape) to help assess the explanation.															
S2.3a use appropriate safety procedures	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S2.3b conduct a scientific investigation	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S2.3c collect quantitative and qualitative data	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Key Idea 3: The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.															
S3.1 Design charts, tables, graphs, and other representations of observations in conventional and creative ways to help them address their research question or hypothesis.															
S3.1a organize results, using appropriate graphs, diagrams, data tables, and other models to show relationships	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.1b generate and use scales, create legends, and appropriately label axes	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.2 Interpret the organized data to answer the research question or hypothesis and to gain insight															

	Earth's Dynamic Geosphere			Understanding Your Environment			Earth's Fluid Spheres			Earth's Natural Resources			Earth System Evolution		
into the problem.															
S3.2a accurately describe the procedures used and the data gathered	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.2b identify sources of error and the limitations of data collected	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S3.2c evaluate the original hypothesis in light of the data	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.2d formulate and defend explanations and conclusions as they relate to scientific phenomena	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.2e form and defend a logical argument about cause-and-effect relationships in an investigation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
S3.2f make predictions based on experimental data	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.2g suggest improvements and recommendations for further studying	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.2h use and interpret graphs and data tables	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
S3.3 Modify their personal understanding of phenomena based on evaluation of their hypothesis.	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
STANDARD 4: The Physical Setting: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.															
Key Idea 1: The Earth and celestial phenomena can be described by principles of relative motion and perspective.															
PERFORMANCE INDICATOR 1.1: Explain daily, monthly, and seasonal changes on Earth.															
1.1a Earth's Sun is an average-sized star. The Sun is more than a million times greater in volume than Earth													O		
1.1b Other stars are like the Sun but are so far away that they look like points of light. Distances between stars are vast compared to distances within our solar system.													O		
1.1c The Sun and the planets that revolve around it are the major bodies in the solar system. Other													O		

	Earth's Dynamic Geosphere	Understanding Your Environment	Earth's Fluid Spheres	Earth's Natural Resources	Earth System Evolution

members include comets, moons, and asteroids. Earth's orbit is nearly circular															
1.1d Gravity is the force that keeps planets in orbit around the Sun and the Moon in orbit around the Earth.													O		
1.1e Most objects in the solar system have a regular and predictable motion. These motions explain such phenomena as a day, a year, phases of the Moon, eclipses, tides, meteor showers, and comets.													O		
1.1f The latitude/longitude coordinate system and our system of time are based on celestial observations.	X												X		
1.1g Moons are seen by reflected light. Our Moon orbits Earth, while Earth orbits the Sun. The Moon's phases as observed from Earth are the result of seeing different portions of the lighted area of the Moon's surface. The phases repeat in a cyclic pattern in about one month.													O		
1.1h The apparent motions of the Sun, Moon, planets, and stars across the sky can be explained by Earth's rotation and revolution. Earth's rotation causes the length of one day to be approximately 24 hours. This rotation also causes the Sun and Moon to appear to rise along the eastern horizon and to set along the western horizon. Earth's revolution around the Sun defines the length of the year as 365 1/4 days.													O		
1.1i The tilt of Earth's axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and season.													O	O	
1.1j The shape of Earth, the other planets, and stars is													O		

	Earth's Dynamic Geosphere			Understanding Your Environment			Earth's Fluid Spheres			Earth's Natural Resources			Earth System Evolution		
nearly spherical															
Key Idea 2: Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.															
PERFORMANCE INDICATOR 2.1: Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change.															
2.1a Nearly all the atmosphere is confined to a thin shell surrounding Earth. The atmosphere is a mixture of gases, including nitrogen and oxygen with small amounts of water vapor, carbon dioxide, and other trace gases. The atmosphere is stratified into layers, each having distinct properties. Nearly all weather occurs in the lowest layer of the atmosphere.							X	O	X						
2.1b As altitude increases, air pressure decreases								O						X	
2.1c The rock at Earth's surface forms a nearly continuous shell around Earth called the lithosphere.	O	O	O	O						X	O		X	O	X
2.1d The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere		X			X	X	O	O	O		X	O	X	O	X
2.1e Rocks are composed of minerals. Only a few rock-forming minerals make up most of the rocks of Earth. Minerals are identified on the basis of physical properties such as streak, hardness, and reaction to acid	O	O	X	O	X	X				O	O	X			
2.1f Fossils are usually found in sedimentary rocks. Fossils can be used to study past climates and environments.										X					O
2.1g The dynamic processes that wear away Earth's surface include weathering and erosion.	O	O	X	O	O		X	O	O					X	O
2.1h The process of weathering breaks down rocks to form sediment. Soil consists of sediment, organic material, water, and air.	X			X	O	X		O	O						
2.1i Erosion is the transport of sediment. Gravity is				X	O	X		O	X						X

	Earth's Dynamic Geosphere			Understanding Your Environment			Earth's Fluid Spheres			Earth's Natural Resources			Earth System Evolution		
the driving force behind erosion. Gravity can act directly or through agents such as moving water, wind, and glaciers.															
2.1j Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.				O	O	O	O	O	O			O		X	X
PERFORMANCE INDICATOR 2.2: Describe volcano and earthquake patterns, the rock cycle, and weather and climate changes.															
2.2a The interior of Earth is hot. Heat flow and movement of material within Earth cause sections of Earth's crust to move. This may result in earthquakes, volcanic eruption, and the creation of mountains and ocean basins.	O	O	O	X	X	X							X	X	X
2.2b Analysis of earthquake wave data (vibrational disturbances) leads to the conclusion that there are layers within Earth. These layers-the crust, mantle, outer core, and inner core-have distinct properties.	O	O	O												
2.2c Folded, tilted, faulted, and displaced rock layers suggest past crustal movement.	O	O	O	X	X	O					X			X	
2.2d Continents fitting together like puzzle parts and fossil correlations provided initial evidence that continents were once together	X	O	O											X	
2.2e The Theory of Plate Tectonics explains how the "solid" lithosphere consists of a series of plates that "float" on the partially molten section of the mantle. Convection cells within the mantle may be the driving force for the movement of the plates.	O	O	O											X	
2.2f Plates may collide, move apart, or slide past one another. Most volcanic activity and mountain building occur at the boundaries of these plates, often resulting in earthquakes.	O	O	O	X	X	X								X	

	Earth's Dynamic Geosphere			Understanding Your Environment			Earth's Fluid Spheres			Earth's Natural Resources			Earth System Evolution		
2.2g Rocks are classified according to their method of formation. The three classes of rocks are sedimentary, metamorphic, and igneous. Most rocks show characteristics that give clues to their formation conditions.	O	O		O	X	X				X	O				X
2.2h The rock cycle model shows how types of rock or rock material may be transformed from one type of rock to another.	O	O		O						X	O				
2.2i Weather describes the conditions of the atmosphere at a given location for a short period of time.							O	O	X					O	O
2.2j Climate is the characteristic weather that prevails from season to season and year to year.							O	O	O					O	O
2.2k The uneven heating of Earth's surface is the cause of weather.							O	O	O					O	O
2.2l Air masses form when air remains nearly stationary over a large section of Earth's surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses over that location.							O	O						O	
2.2m Most local weather condition changes are caused by movement of air masses.							O	O						O	X
2.2n The movement of air masses is determined by prevailing winds and upper air currents.							O	O							
2.2o Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries.							O	O						X	
2.2p High-pressure systems generally bring fair weather. Low-pressure systems usually bring cloudy,							O	O							

	Earth's Dynamic Geosphere		Understanding Your Environment				Earth's Fluid Spheres			Earth's Natural Resources			Earth System Evolution		
unstable conditions. The general movement of highs and lows is from west to east across the United States															
2.2q Hazardous weather conditions include thunderstorms, tornadoes, hurricanes, ice storms, and blizzards. Humans can prepare for and respond to these conditions if given sufficient warning.							O	O							
2.2r Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things.							X	X	O	X				O	O