Southington Public Schools
Curriculum Map

Subject: Science **Grade: 6**

UNIT TITLE	#1 Heat Energy / Weather	# 2 Solar System	#3 Energy in the Earth's System	#4 Erosion	#5 Water: Human Impact
TIMELINE	**Sept. – Mid December**	**Mid December – End of Jan.**	**Feb. – End of March**	**April – Mid May**	**Mid May - June**
CONTENT	Heat Energy / Weather: • Heat causes molecular movement • Solar energy affects seasons & weather patterns • Weather conditions	• Earth, sun, Moon relationships • Earth Cycles: day, month, year • Moon Phases • Solar & Lunar Eclipses	Energy in Earth's Systems: • Landforms result from earth forces • Formation / location & effects of o Volcanoes o Earthquakes	• Destructive Forces on Earth • Weathering, Erosion, Glaciation • Form Valleys & Floodplains	Water Resources: • Movement, function • Surface and ground water • Human activities impact quality
STATE STANDARDS	6.3 Variation in the amount of sun's energy hitting the Earth's surface affects daily and seasonal weather patterns. • Local and regional weather are affected by the amount of solar energy the area receives and proximity to a large body of water. C 7. Describe the effect of heating on the movement of molecules in solids, liquids and gases. C 8. Explain how local weather conditions are related to the temperature, pressure and water content of the	8.3 The solar system is composed of planets and other objects that orbit the sun. • Gravity is the force that governs the motions of objects in the solar system. • The motion of the Earth and moon relative to the sun causes daily, monthly and yearly cycles on Earth. C29. Explain how the regular motion and relative position of the sun, Earth and moon	7.3 Landforms are the result of the interaction of constructive and destructive forces. • Volcanic activity and the folding and faulting of rock layers during the shifting of Earth's crust affect the formation of mountains, ridges, and valleys. C 18 Describe how folded and faulted rock layers provide evidence of the gradual up and down motion of the Earth's crust. C 20 Explain how the boundaries of tectonic plates can be inferred from the location of	7.3 Landforms are the result of the interaction of constructive and destructive forces over time. Glaciation, weathering and erosion change the Earth's surface by moving earth materials from place to place. C 19 Explain how glaciation, weathering and erosion create and shape valleys and floodplains.	6.4 Water moving across and through earth materials carries with it the products of human activities. • Most precipitation that falls on Connecticut eventually reaches Long Island Sound. C10. Explain the role of septic and sewage systems on the quality of surface and ground water. C11. Explain how human activity may impact water resources in Connecticut, such as ponds, rivers and the

STATE STANDARDS	atmosphere and the proximity to a large body of water. C 9. Explain how the uneven heating of the Earth's surface causes winds and affects the seasons. C INQ.1 Identify questions that can be answered through scientific investigation C INQ.2 Read, interpret and examine the credibility of scientific claims in different sources of information. C INQ.3 Design and conduct appropriate types of scientific investigations to answer different questions C INQ.4 Identify independent and dependent variables that are kept constant, when designing an experiment C INQ.5 Use appropriate tools and techniques to make observations and gather data C INQ.6 Use mathematical operations to analyze and interpret data. C INQ.7 Identify and present relationships between variables in	affect the seasons, phases of the moon and eclipses. C INQ.1 Identify questions that can be answered through scientific investigation C INQ.3 Design and conduct appropriate types of scientific investigations to answer different questions C INQ.5 Use appropriate tools and techniques to make observations and gather data C INQ.8 Draw conclusions and identify sources of error. C INQ.9 Provide explanations to investigate problems or questions. C INQ.10 Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic. C INQ.6 Use mathematical operations to analyze and interpret	earthquakes and volcanoes. C INQ.1 Identify questions that can be answered through scientific investigation C INQ.2 Read, interpret and examine the credibility of scientific claims in different sources of information. C INQ.3 Design and conduct appropriate types of scientific investigations to answer different questions C INQ.5 Use appropriate tools and techniques to make observations and gather data C INQ.9 Provide explanations to investigate problems or questions. C INQ.10 Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.	C INQ.1 Identify questions that can be answered through scientific investigation C INQ.3 Design and conduct appropriate types of scientific investigations to answer different questions C INQ.5 Use appropriate tools and techniques to make observations and gather data C INQ.8 Draw conclusions and identify sources of error. C INQ.9 Provide explanations to investigate problems or questions. C INQ.10 Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.	Long Island Sound. C INQ.1 Identify questions that can be answered through scientific investigation C INQ.2 Read, interpret and examine the credibility of scientific claims in different sources of information. C INQ.3 Design and conduct appropriate types of scientific investigations to answer different questions C INQ.5 Use appropriate tools and techniques to make observations and gather data C INQ.9 Provide explanations to investigate problems or questions. C INQ.10 Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

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ASSESSMENT	**PERFORMANCE TASK** You are a meteorologist for a local weather station. You have gathered the following weather data from a given weather map: (temperature, humidity, cloud cover, wind direction, precipitation, fronts, and air pressure, etc.) Take this information and fill in the chart below describing all the weather conditions for the two cities: Boston and Oklahoma City. On the back explain why Boston is cooler than Oklahoma City.	**PERFORMANCE TASK** You are an astronomer and you need to explain to younger students how the position of the earth, sun and moon cause eclipses. This may involve drawings or diagrams and or models. You must also include a written summary of how and when solar and lunar eclipses occur. Your second task is to explain how the position of the Earth in our solar system causes the seasons as we know them. Once again, you may use drawings or diagrams and a written explanation must also be included.	**PERFORMANCE TASK** You are a geologist. You have been given a map of the world and map of the Tectonic Plates. Your first task is to plot the earthquakes and volcanoes that have been recorded over the past month. Use one color for volcanoes and one color for earthquakes. Connect the dots to show the 3 Earthquake and Volcano Zones: Ring of Fire, Mediterranean Zone, and Mid-Atlantic Ridge in 3 different colors. Label each line. Explain why do most earthquakes and volcanoes occur in these areas?	**PERFORMANCE TASK** A travel agency is advertising a tour of Connecticut. The areas being visited show landforms that have been created by glaciation, weathering, and erosion. As the travel agent, you must provide written information for a travel brochure describing what people will see on their trip that relates to the concepts listed above. Include information about the creation and shaping of valleys and floodplains as it relates to the	**PERFORMANCE TASK** CSDE Embedded Performance Task: " Dig In" You are a gardener and will need to select the right plants to grow in the soil in your backyard. You will need to know how water moves through and stays in the soil. Design and conduct an experiment that will test your ideas about the water holding ability of different soil types. Present a completed lab report of your findings.

		Use your knowledge of these concepts in your explanations. 1.		landforms you have chosen.	
ASSESSMENT	**<u>OTHER EVIDENCE</u>** • Student Response Sheets • Drawings of weather fronts • Teacher Observations • Visual models of clouds, charts, illustrations • Homework • Projects • Lab Reports • Weather map interpretations • Quizzes • Test	**<u>OTHER EVIDENCE</u>** • Lab Reports • Student Response Sheets • Moon Phases drawings • Drawings and explanations of Earth/ Sun positions for eclipses • Drawings and explanations of Earth/sun/moon positions for equinoxes • Reading Responses • Diagram representing seasons • Graphs • Quizzes • Test	**<u>OTHER EVIDENCE</u>** 1. 2. Models 3. Maps of locations: 4. plate tectonics, 5. Volcanoes 6. (Ring of Fire) 7. Diagrams 8. Lab Reports 9. Quizzes 10. Booklets 11. Internet Research 12. Project. 13. Test	**<u>OTHER EVIDENCE</u>** 1. 2. Teacher 3. Observations 4. Visual Models of 5. Landforms 6. Homework 7. Projects 8. Lab Reports 9. Quizzes 10. Test	**<u>OTHER EVIDENCE</u>** • • Research • Presentation • Teacher Observation • Diagrams • Lab Reports • Graphs • Notebooks • Homework • Water Pollution • Activity • Quizzes • Tests

SKILLS
 	
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	• Interpret weather maps, diagrams, and flow charts to explain weather conditions.
	• Compare and contrast conduction, convection, and radiation.
	• Describe attributes of the 3 types of clouds and what type of weather they are associated with.
	• Observe, record, and compare how temperature and humidity affect local weather.
	  • Compare and contrast land and sea breezes.
	  • Describe weather conditions that result from unequal heating of the earth's surface.
	  • Explain the difference between cold and warm fronts.
	  • Draw and label diagrams of fronts
		• Collect data about length of day.
		• Graph data about length of day.
		• Draw moon phases
		• Explain how the tilt of the Earth's axis and the Earth's revolution around the sun produce seasons.
		• Describe how the length of day is a consequence of rotation/revolution.
		• Explain the cause and effects of our seasons.
		• Compare the spring and fall equinox.
		• Explain the difference between Earth's rotation and revolution.
		• Draw and describe the positions of the earth, moon and sun during solar and lunar eclipses.
		• Explain the difference between the lunar and solar eclipses.
		• Describe the difference between a partial and total eclipse.
			• Compare and contrast 3 types of volcanoes.
			• Analyze how plate movements cause landforms to be created.
			• Describe 3 types of stress and what they cause.
			• Design models of faulted and folded rock layers and explain how they were created in the earth.
			• Describe the damage that occurs based on your proximity to the epicenter of an earthquake.
			• Explain the process of plate movement.
			• Interpret diagrams: theory of plate tectonics – ocean floor spreading, and subduction.
			• Draw and ID the plates of the earth with the location of volcanoes and hot spots.
			• Research and describe recent volcanic eruptions and their effects.
				Identify and describe the 5 agents of erosion.
				Explain how landforms are created from erosion and glaciation.
				Analyze local landforms and determine how they were formed.
				Compare and contrast mechanical and chemical weathering.
				Describe 5 factors that influence the rate of weathering.
				Explain how deltas and floodplains are formed and how they impact our lives.
				Simulate the process of erosion using water and soil.
					• Investigate water properties.
					• Describe water properties
					• Explain how water moves through the water cycle and describe the processes involved
					• Classify different types of pollutants and their origin
					• Classify locations as point and non-point sources of pollution
					• Compare and contrast non-point and point pollution sources
					• Analyze the cause and effects of freshwater pollution
					• Evaluate the solutions for water pollution
					• Explain the role of septic and sewage systems on the quality of surface and ground water
					• Compare & contrast the effects of different water cycle locations on the quality of water
					• Read and interpret topographic maps

					• Analyze, graph and summarize water quality data