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<p>Develop a model to illustrate the life span of the sun and the role of nuclear fission in the sun's core to release energy that eventually reaches the Earth's surface</p> <p>Construct an explanation of the Big Bang Theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe</p> <p>Communicate scientific ideas about the way stars, over their life cycle, produce elements</p>			
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Earth and the Solar System

Analyze and interpret data to determine scale properties of objects in the solar system

Use mathematical or computational representations to predict the motion of orbiting objects in the solar system

<p>account of Earth's formation and early history</p>			
<p>Earth Materials and Systems</p> <p>Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process</p> <p>Construct an explanation for how geoscience processes have changed Earth's surface at varying time and spatial scales</p> <p>Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features</p> <p>Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems</p> <p>Develop a model of Earth's interior to describe the cycling of matter by thermal convection</p> <p>Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate</p>	<p>Matter and Energy in the Environment</p> <p>Environmental Geochemistry</p> <p>Evolution and Ecology</p> <p>Thermodynamics</p> <p>Physical Geology</p>		
<p>The Role of Water in Earth's Surface Processes</p> <p>Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity</p>	<p>Intro to Urban Watersheds</p> <p>Hydrogeology</p>		

Collect data to provide evidence

<p>Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios</p>			
<p>Human Impacts on Earth's Systems</p> <p>Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment</p> <p>Construct an argument for how increases in human population and per-capita consumption of natural resources impact Earth's systems</p> <p>Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity;</p> <p>Evaluate or refine a technological solution that reduces impacts of human activities on natural systems</p>	<p>Global Environmental Change</p>		
<p>Global Climate Change</p> <p>Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century</p> <p>Analyze geoscience data and the results from global climate models to make an</p>	<p>Climate Change: Oceans to Atmospheres</p>		

evidence-based forecast of the current rate of global or regional climate change and associated future impact to Earth's systems Use a computational representation to illustrate the relationships among Earth's systems and how those relationships are being modified due to human activity			
		Total Credits:	

Note: Applicants may qualify to enter the MAT program with a content specialization in Earth Space Science if they have an undergraduate major in the certification area, or if they have completed 30 credit hours of coursework in Earth Space Science.

Secondary Earth Space Science, 7-12 Grade Teacher Certification

Full standards are available at NSTA: <https://ngss.nsta.org/>