

Investigations on the nature of science and how scientific knowledge is achieved are essential components of sixth grade Earth science and necessary to achieve scientific literacy. The middle school earth science course is designed to enable students to look at the Earth as a set of closely coupled systems. This will be achieved by providing students with an overview of common strands in Earth science including lab safety, Earth's History, Our solar system, Earth's materials and systems, Earth's changing surface, Weather and climate, Water and Earth's Surface processes, and Human Impact on Earth.

Grade 6 focuses on the disciplinary core ideas of the Earth and Space Science domain. The second core idea, Earth's systems, encompasses the processes that drive Earth's conditions and its continual change over time. The third core idea, Earth and Human Activity , addresses society's interactions with the planet.

These strands are aligned with the 2015 Alabama Course of Study for Science and N.G.S.S. Standards

<u>Timeline</u>	<u>Unit/theme</u>	<u>Standard Student Focused Objective</u>	<u>Resources/Suggested Activities</u>
<p>July 31- August 29, 2024</p>	<p>Unit 1 - Lab Skills (10 lessons)</p> <p>Unit 5 - Earth's Materials and Systems (10 lessons)</p>	<ol style="list-style-type: none"> 1. Welcome Back to School 2. Establish base line data and routines and procedures 3. Explore lab equipment, safety symbols, and making observations. 4. Describe the scientific method and formulate a hypothesis. 5. Record data in a scientific lab report 6. Name, identify and model the different layers of Earth 7. Define and Describe the plate tectonic theory and sea floor spreading. 8. Define Continental Drift, Volcanoes, Earthquakes and the processes Earth goes through when these occur. Use models to explain how the flow of Earth's internal energy drives a cycling of matter. (mid-ocean ridges, ocean trenches, volcanoes, earthquakes, mountains, rift valleys, volcanic islands.) 9. Analyze and interpret data to describe how human activities and natural processes may cause changes in local and global temperatures over time (volcanoes) 10. Alabama Course of Study Standards covered - 5,6,13,14 	<p>AMSTI resources math https://www.amsti.org/68-science-student-family https://www.amsti.org/science-6-8-classroom</p> <p>Lab safety, volcanoes, earthquakes, plate tectonics, and continental drift videos on Youtube imbedded within the lessons.</p>

<u>Timeline</u>	<u>Unit/theme</u>	<u>Standard Student Focused Objective</u>	<u>Resources/Suggested Activities</u>
<p>September 9 - October 17, 2024</p>	<p>Unit 4 - Earth's History (9 Lessons)</p> <p>Unit 6 - Earth's Changing Surface (10 lessons)</p>	<ol style="list-style-type: none"> 1. Describe the processes involved in the formation of the Earth. 2. Describe and define a geological time scale - precambrian, prehistoric, eras 3. Describe mass extinction and fossils. 4. Define chemical weathering and identify the agents which can cause it. 5. Differentiate between physical and chemical weathering and note the different types of physical weathering. 6. Define the erosion cycle 7. Investigate and Identify different rocks and minerals and their properties . 8. Describe what the rock cycle is and how rocks change over time. Explain how these changes contribute to the changes on Earth's surface. 9. Describe and define what the nitrogen and carbon cycles are and how humans influence both. 10. Alabama Course of Study Standards covered - 4,5,6,7,8,13,14,15,16 	<p>AMSTI resources math https://www.amsti.org/68-science-student-family https://www.amsti.org/science-6-8-classroom</p> <p>Earth Processes, weathering, fossils, extinction, erosions, rock,nitrogen, carbon cycles videos on Youtube imbedded within the lessons.</p>

<u>Timeline</u>	<u>Unit/theme</u>	<u>Standard Student Focused Objective</u>	<u>Resources/Suggested Activities</u>
<p>October 21- December 20, 2024</p>	<p>Unit 7- Water and Earth's Surface processes (5 Lessons)</p> <p>Unit 8 - Weather and Climate (17 Lessons)</p>	<ol style="list-style-type: none"> 1. Describe Earth's hydrosphere. Identify constructive and deconstructive processes. 2. Describe the water cycle and explain what moves it. 3. Differentiate between saltwater and freshwater and the distribution on Earth's surface. 4. Describe the atmosphere. Give examples of geosphere, biosphere, hydrosphere, ozone, and atmosphere. 5. Discuss the layers of the atmosphere and what natural features and technology can be found in each layer of the atmosphere. 6. Explain the difference between weather and climate and the 5 variables that contribute to weather data. 7. Describe clouds and formation 8. Identify the different types of clouds and identify the role of water cycle in the cloud formation 9. Define biomes, ocean currents, and the types of ocean currents. Explain how ocean currents influence climate. 10. Define climate change and what took place during the glacial and interglacial periods. Explain the causes of climate change. Discuss how to mitigate these effects of climate change. 11. Alabama Course of Study Standards covered - 1,4,12,13,14 	<p>AMSTI resources math https://www.amsti.org/68-science-student-family https://www.amsti.org/science-6-8-classroom</p> <p>Water cycle, salt and freshwater, geospheres, cloud formation videos on Youtube imbedded within the lessons.</p>

<u>Timeline</u>	<u>Unit/theme</u>	<u>Standard Student Focused Objective</u>	<u>Resources/Suggested Activities</u>
<p>January 9 - March 21, 2025</p>	<p>Unit 2 - Our Solar System (15 Lessons)</p> <p>Unit 3 - Planet Earth (9 Lessons)</p>	<ol style="list-style-type: none"> 1. Describe what our solar system is made up of and its boundaries. 2. Explain the role of gravity in the motions within the solar system. 3. Name/label/discuss each inner and outer planet. Be sure to point out unique features with each one of them. 4. Analyze and interpret data from a table to describe the scale of planets in our solar system and the distances among them. 5. Explain the role of the Sun in the solar system. Describe its different layers and parts. Explain how it generates its own energy. Describe different solar activities. 6. Describe the characteristics of a star and how they are classified. Include the life cycle of a star and nuclear fusions that produce one. 7. Define what a constellation is and recognize common ones seen in the night sky. Explain why some can only be seen at a particular time of year. 8. Describe what a galaxy is and the classification of galaxies according to shapes. 9. Describe asteroids, comets, meteoroids. Compare and contrast the characteristics of them. 10. Identify the characteristics necessary for life to exist on a planet. Explain why Earth is a conducive place for life to thrive. 11. Define exo-planet and how astronomers discover exo-planets. 12. Describe the location of Earth in the universe. Identify the supercluster where Earth belongs. 13. Describe the Milky Way and our Solar system. 14. Differentiate between rotation and revolution. 15. Describe how the Earth rotates and revolves around the sun. 16. Explain what causes day and nights. Explain the length of day and how latitude and longitude affect day length. 17. Explain how the revolution of the Earth around the Sun causes seasons of both the northern and southern hemispheres. 18. Name the phases of the moon and why the lunar phase occurs. Describe the composition of the moon and the current theory of its 	<p>AMSTI resources math https://www.amsti.org/68-science-student-family https://www.amsti.org/science-6-8-classroom</p> <p>Solar system, Sun, galaxy, comets, asteroids, and meteoroids, exoplanets, moon phases, rotation and revolution videos on Youtube imbedded within the lessons.</p>

<p><u>Timeline</u> March 31 - May 28, 2025</p>	<p><u>Unit/theme</u> Unit 9 - Human Impact (9 Lessons)</p>	<p>formation. Explain what an eclipse is and the different types of eclipses. 19. Describe what tides are and what causes tides to occur - low tide/high tide/neap tide/spring tide 20. Describe how tides impact like on the rocky shore. 21. Alabama Course of Study Standards covered - 1,2,3,13,14</p> <hr/> <p style="text-align: center;"><u>Standard Student Focused Objective</u></p> <ol style="list-style-type: none"> 1. Define natural resources. 2. Explain what cause uneven distribution of Earth’s natural resources and the distribution 3. Differentiate between renewable and non renewable resources 4. Define energy sources and explain the advantages and disadvantages of renewable and nonrenewable energy resources. 5. Identify human activities that impact natural resources. Explain how depletion of natural resources affects the environment and living things. 6. Define resource extraction. Define quarrying, mining and drilling on the Earth’s surface/ 7. Explain why nonrenewable resources extraction becomes more difficult over time. 8. Define water pollution 9. Identify common water pollutants and differentiate point and nonpoint sources of water pollution. Discuss the effects of water pollution. 10. Define Air pollution. Identify common sources of air pollutants. Relate air pollution to acid rain formation and the effects of air pollution 11. Define soil erosion. Identify the causes of soil erosion and the impact it has on natural resources. Discuss ways to mitigate soil erosions. 12. Define Conservation. Identify ways to conserve natural resources and explain the importance of conservation of natural resources. 13. Alabama Course of Study Standards covered - 15,16,13,14 	<p style="text-align: center;"><u>Resources/Suggested Activities</u></p> <p>AMSTI resources math https://www.amsti.org/68-science-student-family https://www.amsti.org/science-6-8-classroom</p> <p>Natural resources, human impact, water pollution, air pollution, soil pollution, how human can help conserve videos on Youtube imbedded within the lessons.</p>
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