



8th Grade Science Pacing Guide 2017 - 2018

1st Nine Weeks

August 7, 2017 – October 6, 2017

Labor Day Holiday: September 4, 2017

Progress Reports Issued: September 7, 2017

1st 9 Weeks Assessments: October 3, 4, 5, & 6

Unit	Objective	Mississippi 8 th Grade Science Framework Objectives	Tentative teaching Date(s)
Scientific Inquiry	1b	1b. Distinguish between qualitative and quantitative observations and make inferences based on observations	Week 1 August 7-11, 2017
Scientific Inquiry	1c	1c. Summarize data to show the cause and effect relationship between qualitative and quantitative observations <ul style="list-style-type: none"> • tools (rulers, thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches, graduated cylinders, medicine droppers) • types of data (linear measures, mass, volume, temperature, area, perimeter) • resources (internet, electronic encyclopedias, journals, community resources) 	Week 1 August 7-11, 2017
Scientific Inquiry	1d	<ul style="list-style-type: none"> • 1d. Analyze evidence that is used to form explanations and draw conclusions 	Week 2 August 14-18, 2017
Scientific Inquiry	1e	1e. Develop a logical argument defending conclusions of an experimental method	Week 2 August 14-18, 2017
Physical Science	2a & 2b	2a. Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass <ul style="list-style-type: none"> • chemical symbols and chemical formulas of common substances (table salt, water, sugar, oxygen gas, carbon dioxide, nitrogen gas) • mass of reactants before a change and products after a change • balanced chemical equations such as photosynthesis and respiration 2b. Predict the properties and interactions of given elements using the periodic table of the elements <ul style="list-style-type: none"> • metals and nonmetals • acids and bases 	Week 3 August 21-25, 2017



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		chemical changes in matter (rusting, combustion, food spoilage)	
Physical Science	2a & 2b	<p>2a. Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass</p> <ul style="list-style-type: none"> • chemical symbols and chemical formulas of common substances (table salt, water, sugar, oxygen gas, carbon dioxide, nitrogen gas) • mass of reactants before a change and products after a change • balanced chemical equations such as photosynthesis and respiration <p>2b. Predict the properties and interactions of given elements using the periodic table of the elements</p> <ul style="list-style-type: none"> • metals and nonmetals • acids and bases <p>chemical changes in matter (rusting, combustion, food spoilage)</p>	<p>Week 4 August 28- September 1, 2017</p>
Physical Science	2d, 2e	<p>2d. Relate how electrical energy transfers through electric circuits, generators, and power grids, including the importance of contributions from Mississippi companies</p> <ul style="list-style-type: none"> • The Electrical Powers Products Division of Howard Industries, a leading manufacturer of electrical distribution equipment in such locations as Laurel and Ellisville, MS Kuhlman Electric Corporation, located in Crystal Springs, MS. <p>2e. Contrast various components of the electromagnetic spectrum (infrared, visible light, ultraviolet) and predict their impacts on living things.</p>	<p>Week 5 September 4-8, 2017</p>
Physical Science	2c, 2f	<p>2c. Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction</p> <p>2f. Recognize Newton's Three Laws of Motion and identify situations that illustrate each law (inertia, acceleration, action, reaction forces)</p>	<p>Week 6 September 11-15, 2017</p>



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Physical Science	2c, 2f	<p>2c. Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction</p> <p>2f. Recognize Newton's Three Laws of Motion and identify situations that illustrate each law (inertia, acceleration, action, reaction forces)</p>	<p>Week 7 September 18 - 22, 2017</p>
	<p>1b-1c- 1d-1e- 2a-2b-2d - 2e- 2f - 2g</p>	<p>Reviewing Multiple Skills 1b-1c-1d-1e-2a-2b-2d – 2e- 2f – 2g</p>	<p>Week 8 September 25 - 29, 2017</p>
		<p>Comprehensive 1st 9 Weeks Assessment</p>	<p>Week 9 October 2-6, 2017</p>



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2nd Nine Weeks

October 10, 2017 – December 20, 2017

Report Card Issued: October 12

Fall Break: October 9, 10

District Professional Development: October 10

Progress Reports Issued: November 9

Thanksgiving Holiday Break: November 20 – 24

Christmas Holiday Break: December 21-January 3, 2018

2nd 9 Weeks Assessments: December 18, 19, 20

Unit	Objective	Mississippi 5 th Grade Science Framework Objectives	Tentative teaching Date(s)
Scientific Inquiry	1a	1a. Design, conduct, and analyze conclusions from an investigation that includes using experimental controls.	Week 10 & Week 11 October 11-13, 2017
Scientific Inquiry	1b-1e Review	<p>1b. Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK 3)</p> <p>1c. Summarize data to show the cause and effect relationship between qualitative and quantitative observations (using standard, metric, and non-standard units of measurement). (DOK 3)</p> <ul style="list-style-type: none"> • Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches, graduated cylinders, medicine droppers) • Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter) • Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.) <p>1d. Analyze evidence that is used to form explanations and draw conclusions. (DOK 3)</p> <p>1e. Develop a logical argument defending</p>	Week 10 & Week 11 October 11-13, 2017



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		<p>conclusions of an experimental method. (DOK 3)</p> <p>Use precise measurement in conjunction with simple tools and technology to perform tests and collect data</p> <ul style="list-style-type: none"> • tools (rulers – [English and Metric], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers) • types of data (height, mass, volume, temperature, length, time, distance, volume, perimeter, area) 	
Physical Science	3b, 3h	<p>3b Compare and contrast the major components and functions of different types of cells. (DOK 2)</p> <ul style="list-style-type: none"> • Differences in plant and animal cells • Structures (nucleus, cytoplasm, cell membrane, cell wall, mitochondrion, and nuclear membrane) • Different types of cells and tissues (e.g., epithelial, nerve, bone, blood, muscle) <p>3h. Describe how an organism gets energy from oxidizing its food and releasing some of its energy as heat. (DOK 1)</p>	<p>Week 11 October 16-20, 2017</p>
Life Science	3c	<p>3c. Describe how viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions. (DOK 1)</p>	<p>Week 12 October 23-27, 2017</p>
Life Science	3c and 3g	<p>3c. Describe how viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions. (DOK 1)</p> <p>3g. Research and draw conclusions about the use of single-celled organisms in industry, in the production of food, and impacts on life. (DOK 3)</p>	<p>Week 13 October 30- November 3, 2017</p>
Life Science	3d L.8.2A.1 L.8.2A.2 L.8.2A.3 L.8.2A.4 L.8.2A.5 L.8.2B.2	<p>3d. Describe heredity as the passage of instructions from one generation to another and recognize that hereditary information is contained in genes, located in the chromosomes of each cell. (DOK 2)</p> <ul style="list-style-type: none"> • How traits are passed from parents to offspring through pairs of genes • Phenotypes and genotypes 	<p>Week 14 November 6-10, 2017</p>



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	L.8.2B.3 L.8.2C.1 L.8.2C.2	<ul style="list-style-type: none"> • Hierarchy of DNA, genes, and chromosomes and their relationship to phenotype • Punnett square calculations 	
Life Science	3e	3e. Explain energy flow in a specified ecosystem. (DOK 2) <ul style="list-style-type: none"> • Populations, communities, and habitats • Niches, ecosystems and biomes • Producers, consumers and decomposers in an ecosystem 	Week 15 November 13-17, 2017
Life Science	3a. L.8.2B.1 L.8.4A.1 L.8.4A.2	3a. Analyze how adaptations to a particular environment (e.g., desert, aquatic, high altitude) can increase an organism's survival and reproduction and relate organisms and their ecological niches to evolutionary change and extinction. (DOK 3)	Week 16 November 27- December 1, 2017
Life Science	3f.	3f - Develop a logical argument for or against research conducted in selective breeding and genetic engineering, including (but not limited to) research conducted in Mississippi. Examples from Mississippi include the following: (DOK 3) <ul style="list-style-type: none"> • The Animal Functional Genomics Laboratory at Mississippi State University • The Stoneville Pedigreed Seed Company in Stoneville, MS • Catfish Genetics Research Unit at the Thad Cochran National Warm Water Aquaculture Center in Stoneville, MS 	Week 17 December 4-8, 2017
	1a-1f, 3a, 3b, 3c, 3d, 3e, 3f, 3g, and 3h	Reviewing Multiple Skills: 1a-1f, 3a, 3b, 3c, 3d, 3e, 3f, 3g, and 3h	Week 18 December 11 - 15, 2017
		Comprehensive 2nd 9 Weeks Assessment	Week 19 December 18-20 , 2017



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3rd Nine Weeks

January 4, 2018 – March 9, 2018

Report Cards Issued: January 11

Dr. MLK Holiday: January 15

Progress Reports Issued: February 8

President's Day Holiday: February 19

3rd 9 Weeks Assessments: March 6, 7, 8, & 9

Unit	Objective	Mississippi 5 th Grade Science Framework Objectives	Tentative teaching Date(s)
Scientific Inquiry	1a Review	<p>1a. Form a hypothesis, predict outcomes, and conduct a fair investigation that includes manipulating variables and using experimental controls</p>	<p>Week 20 January 8-12, 2018</p>
Scientific Inquiry	1b-1e Review	<p>1b. Distinguish between qualitative and quantitative observations and make inferences based on observations. (DOK 3)</p> <p>1c. Summarize data to show the cause and effect relationship between qualitative and quantitative observations (using standard, metric, and non-standard units of measurement). (DOK 3)</p> <ul style="list-style-type: none"> • Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches, graduated cylinders, medicine droppers) • Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter) • Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.) <p>1d. Analyze evidence that is used to form</p>	<p>Week 20 January 8-12, 2018</p>



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		<p>explanations and draw conclusions. (DOK 3)</p> <p>1e. Develop a logical argument defending conclusions of an experimental method. (DOK 3)</p>	
Scientific Inquiry	1f	1f. Develop a logical argument to explain why perfectly designed solutions do not exist. (DOK 3)	Week 20 January 8-12, 2018
Scientific Inquiry	1g	1g. Justify a scientist's need to revise conclusions after encountering new experimental evidence that does not match existing explanations. (DOK 3)	Week 20 January 8-12, 2018
Scientific Inquiry	1h	1h. Analyze different ideas and recognize the skepticism of others as part of the scientific process in considering alternative conclusions. (DOK 3)	Week 20 January 8-12, 2018
Earth and Space Science	4a and 4b	<p>4a. a. Compare and contrast the lithosphere and the asthenosphere. (DOK 1)</p> <ul style="list-style-type: none"> • Composition, density, and location of continental crust and oceanic crust • Physical nature of the lithosphere (brittle and rigid) with the asthenosphere (plastic and flowing) • How the lithosphere responds to tectonic forces (faulting and folding) <p>4b. Describe the cause and effect relationship between the composition of and movement within the Earth's lithosphere. (DOK 1)</p> <ul style="list-style-type: none"> • Seismic wave velocities of earthquakes and volcanoes to lithospheric plate boundaries using seismic data • Volcanoes formed at mid-ocean ridges, within intra-plate regions, at island arcs, and along some continental edges • Modern distribution of continents to the movement of lithospheric plates since the formation of Pangaea 	Week 21 January 15-19, 2018
Earth and Space Science	4a and 4b	<p>4a. a. Compare and contrast the lithosphere and the asthenosphere. (DOK 1)</p> <ul style="list-style-type: none"> • Composition, density, and location of continental crust and oceanic crust • Physical nature of the lithosphere (brittle and rigid) with the asthenosphere (plastic and 	Week 22 January 22-26, 2018



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		<p>flowing)</p> <ul style="list-style-type: none"> • How the lithosphere responds to tectonic forces (faulting and folding) <p>4b. Describe the cause and effect relationship between the composition of and movement within the Earth’s lithosphere. (DOK 1)</p> <ul style="list-style-type: none"> • Seismic wave velocities of earthquakes and volcanoes to lithospheric plate boundaries using seismic data • Volcanoes formed at mid-ocean ridges, within intra-plate regions, at island arcs, and along some continental edges • Modern distribution of continents to the movement of lithospheric plates since the formation of Pangaea 	
Earth and Space Science	4d, 4g	<p>4d. Research the importance of the conservation of renewable and nonrenewable resources, including (but not limited to) Mississippi, and justify methods that might be useful in decreasing the human impact on global warming. (DOK 3)</p> <ul style="list-style-type: none"> • Greenhouse gases • The effects of the human population • Relationships of the cycles of water, carbon, oxygen, and nitrogen <p>4g. Justify the importance of continued research and use of new technology in the development and commercialization of potentially useful natural products, including, but not limited to research efforts in Mississippi. (DOK 3)</p> <ul style="list-style-type: none"> • The Thad Cochran National Center for Natural Products Research, housed at the University of Mississippi • The Jamie Whitten Delta States Research Center in Stoneville, MS, • The Mississippi Polymer Institute, housed at the University of Southern Mississippi 	<p>Week 23 January 29-February 2, 2018</p>
Earth and Space Science	4e	<p>4e. Explain how the tilt of Earth’s axis and the position of the Earth in relation to the sun determine climatic zones, seasons, and length of the days. (DOK 2)</p>	<p>Week 24 February 5-9, 2018</p>



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Earth and Space Science	4f	<p>4f. Describe the hierarchical structure (stars, clusters, galaxies, galactic clusters) of the universe and examine the expanding universe to include its age and history and the modern techniques (e.g., radio, infrared, ultraviolet and X-ray, astronomy) used to measure objects and distances in the universe. (DOK 2)</p>	<p>Week 25 February 12-16, 2018</p>
Earth and Space Science	4c/4h	<p>4c. Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather. (DOK 2)</p> <ul style="list-style-type: none"> • Temperature, precipitation, wind (speed/direction), dew point, relative humidity, and barometric pressure • How the thermal energy transferred to the air results in vertical and horizontal movement of air masses, Coriolis effect • Global wind patterns (e.g., trade winds, westerlies, jet streams) • Satellites and computer modeling <p>4h. Justify why an imaginary hurricane might or might not hit a particular area, using important technological resources including (but not limited to) the following: (DOK 2)</p> <ul style="list-style-type: none"> • John C. Stennis Space Center Applied Research and Technology Project Office in Hancock County • National Oceanic and Atmospheric Administration (NOAA) • The National Weather Service 	<p>Week 26 February 19-23, 2018</p>
Earth and Space Science	1a-1h, 4a, 4b, 4c, 4d, 4e, 4f, 4g, and 4h	<p>Review of Multiple Skills: 1a-1h, 4a, 4b, 4c, 4d, 4e, 4f, 4g, and 4h</p>	<p>Week 27 February 26-March 2, 2018</p>
		<p>Comprehensive 3rd 9 Weeks Assessment</p>	<p>Week 28 March 5-9, 2018</p>