

**FIFTH GRADE (MAAP SCIENCE)
PACING GUIDE
2021 – 2022**




**WEST BOLIVAR
CONSOLIDATED SCHOOL DISTRICT**

FIFTH GRADE THEME: INTERDEPENDENCE OF SYSTEMS

BIG GOAL: Students will model, provide evidence to support arguments, and obtain and display data about relationships among a variety of systems.

FIRST NINE WEEKS					
WEEKS	INSTRUCTIONAL DAYS	PERFORMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
AUG 9 – 20	10	SEP(s)	The Nature of Science: Science and Engineering Practices	SCIENCE AND ENGINEERING PRACTICES 1. Asking questions and defining problems 2. Planning and carrying out investigations 3. Analyzing and interpreting data 4. Developing and using models 5. Constructing explanations and designing solutions 6. Engaging in argument from evidence 7. Using mathematics and computational thinking 8. Obtaining, evaluating, and communicating information	TEACHER LED PROBLEM OR PROJECT – BASED LESSON
AUG 23 – SEPT 3	10	L.5.3A.1 L.5.3A.2	UNIT 1: Photosynthesis	L.5.3A.1 Research and communicate the basic process of photosynthesis that is used by plants to convert light energy into chemical energy that can be stored and released to fuel an organism’s activities. L.5.3A.2 Analyze environments that do not receive direct sunlight and devise explanations as to how photosynthesis occurs, either naturally or artificially.	GRADE 4: UNIT 3 LESSONS 1 – 3 PP. 103 – 134
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY; UNIT TEST – 1 DAY					
SEPT 6 – 24	15	L.5.3B.1 L.5.3B.2 L.5.3B.3 L.5.3B.4	UNIT 2: Energy Flow in Ecosystems/ Interdependence of Organisms	L.5.3B.1 Obtain and evaluate scientific information regarding the characteristics of different ecosystems and the organisms they support (e.g., salt and fresh water, deserts, grasslands, forests, rain forests, or polar tundra lands). L.5.3B.2 Develop and use a food chain model to classify organisms as producers, consumers, or decomposers. Trace the energy flow to explain how each group of organisms obtains energy. L.5.3B.3 Design and interpret models of food webs to justify what effects the removal or the addition of a species (i.e., introduced or invasive) would have on a specific population and/or the ecosystem as a whole. L.5.3B.4 Communicate scientific or technical information that explains human positions in food webs and our potential impacts on these systems.	GRADE 5: UNIT 6 LESSONS 1 – 3 PP. 291 – 322
12 INSTRUCTIONAL DAYS; UNIT REVIEW – 2 DAYS; UNIT TEST – 1 DAY					
SEPT 27 – OCT 1	5	E.5.10.1 E.5.10.2	UNIT 3: Human Interactions with Earth/ Earth’s Resources	E.5.10.1 Collect and organize scientific ideas that individuals and communities can use to conserve Earth’s natural resources and systems (e.g., implementing watershed management practices to conserve water	GRADE 5: UNIT 5 LESSON 3 PP. 263 – 280


				resources, utilizing no-till farming to improve soil fertility, reducing emissions to abate air pollution, or recycling to reduce landfill waste). E.5.10.2 Design a process for better preparing communities to withstand man-made or natural disasters (e.g. removing oil from water or soil. systems that reduce the impact of floods, structures that result hurricane forces). Use an engineering design process to define the problem, design, construct, evaluate, and improve the disaster plan.	GRADE 5: UNIT 7 LESSONS 1 – 3 PP. 329 – 358
3 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY; UNIT TEST – 1 DAY					
OCT 4 – 8	5	REVIEW		REVIEW – PHOTOSYNTHESIS (1 DAY) REVIEW – INTERDEPENDENCE OF ORGANISMS AND ENERGY FLOW IN ECOSYSTEMS (3 DAYS) REVIEW – HUMAN INTERACTIONS WITH EARTH (1 DAY)	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
OCT 11 – 15	1ST TERM ASSESSMENT (CUMULATIVE UP TO THIS POINT)				

SECOND NINE WEEKS					
WEEKS	INSTRUCTIONAL DAYS	PERFORMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
OCT 18 – NOV 2	10	P.5.6.1 P.5.6.2 P.5.6.3 P.5.6.4 P.5.6.5 P.5.6.6	UNIT 1: Forces and Motion	P.5.6.1 Obtain and communicate information describing gravity's effect on an object. P.5.6.2 Predict the future motion of various objects based on past observation and measurement of position, direction, and speed. P.5.6.3 Develop and use models to explain how the amount or type of force, both contact and noncontact, affects the motion of an object. P.5.6.4 Plan and conduct scientific investigations to test the effects of balanced and unbalanced forces on the speed and/or direction of objects in motion. P.5.6.5 Predict how a change of force, mass, and/or friction affects the motion of an object to convert potential energy into kinetic energy. P.5.6.6 Design a system to increase the effects of friction on the motion of an object (e.g., non-slip surfaces or vehicle braking systems or flaps on aircraft wings). Use an engineering design process to define the problem, design, construct, evaluate, and improve the system.*	GRADE 5: UNIT 15 LESSONS 1 – 4 PP. 699 – 734
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY; UNIT TEST – 1 DAY					
NOV 3 – 19	13	P.5.5A.1 P.5.5A.2 P.5.5A.3 P.5.5A.4 P.5.5A.5	UNIT 2: Properties of Matter	P.5.5A.1 Obtain and evaluate scientific information to describe basic physical properties of atoms and molecules. P.5.5A.2 Collect, analyze, and interpret data from measurements of the physical properties of solids, liquids, and gases (e.g., volume, shape, movement, and spacing of particles). P.5.5A.3 Analyze matter through observations and measurements to classify materials (e.g., powders, metals, minerals, or liquids) based on their	GRADE 4: UNIT 7 LESSONS 1 – 2 PP. 351 – 370 GRADE 5: UNIT 13 LESSON 1, LESSON 6 PP. 579 – 592 PP. 629 – 638


				properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility, or density). P.5.5A.4 Make and test predictions about how the density of an object affects whether the object sinks or floats when placed in a liquid. P.5.5A.5 Design a vessel that can safely transport a dense substance (e.g., syrup, coins, marbles) through water at various distances and under variable conditions. Use an engineering design process to define the problem, design, construct, evaluate, and improve the vessel.*	
10 INSTRUCTIONAL DAYS; UNIT REVIEW – 2 DAYS; UNIT TEST – 1 DAY					
NOV 29 – DEC 10	10	P.5.5C.1 P.5.5C.2 P.5.5C.3	UNIT 3: Physical and Chemical Changes	P.5.5C.1 Analyze and communicate the results of chemical changes that result in the formation of new materials (e.g. decaying, burning, rusting, or cooking). P.5.5C.2 Analyze and communicate the results of physical changes to a substance that results in a reversible change (e.g. changes in states of matter with the addition or removal of energy, changes in size or shape, or combining/separating mixtures or solutions). P.5.5C.3 Analyze and interpret data to support claims that when two substances are mixed, the total weight of matter is conserved.	<u>GRADE 4: UNIT 8</u> LESSONS 1 – 4 PP. 391 – 420 <u>GRADE 5: UNIT 13</u> LESSONS 2 – 3 PP. 595 – 612
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY; UNIT TEST – 1 DAY					
DEC 13 – 14	2	REVIEW		REVIEW 1 ST TERM STANDARDS – 1 DAY REVIEW 2 ND TERM STANDARDS – 1 DAY	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
DEC 15 – 21	5			2ND TERM ASSESSMENT (CUMULATIVE UP TO THIS POINT, ALL STANDARDS WILL BE ASSESSED)	
DEC 22 – JAN 5 WINTER BREAK					

THIRD NINE WEEKS

WEEKS	INSTRUCTIONAL DAYS	PERFORMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
JAN 6 – 21	10	P.5.5B.1 P.5.5B.2 P.5.5B.3 P.5.5B.4	UNIT 4: Mixtures and Solutions	P.5.5B.1 Obtain and evaluate scientific information to describe what happens to the properties of substances in mixtures and solutions. P.5.5B.2 Analyze and interpret data to communicate that the concentration of a solution is determined by the relative amount of solute versus solvent in various mixtures. P.5.5B.3 Investigate how different variables (e.g., temperature change, stirring, particle size, or surface area) affect the rate at which a solute will dissolve. P.5.5B.4 Design an effective system (e.g., sifting, filtration, evaporation, magnetic attraction, or floatation) for separating various mixtures. Use an engineering design process to define the problem, design, construct, evaluate, and improve the system.*	<u>GRADE 5: UNIT 13</u> LESSONS 4 – 5 PP. 613 – 628
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAYS; UNIT TEST – 1 DAY					

JAN 24 – FEB 8	12	E.5.8A.1 E.5.8A.2 E.5.8A.3 E.5.8A.4	UNIT 1: Stars and the Solar System	E.5.8A.1 Develop and use scaled models of Earth’s solar system to demonstrate the size, composition (i.e., rock or gas), location, and order of the planets as they orbit the Sun. E.5.8A.2 Use evidence to argue why the sun appears brighter than other stars. E.5.8A.3 Describe how constellations appear to move from Earth’s perspective throughout the seasons (e.g., Ursa Major, Ursa Minor, and Orion). E.5.8A.4 Construct scientific arguments to support claims about the importance of astronomy in navigation and exploration, including the use of telescopes, compasses, and star charts.	<u>GRADE 5: UNIT 12</u> LESSONS 1 – 3 PP. 539 – 572
10 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY; UNIT TEST – 1 DAY					
FEB 9 – 25	12	E.5.8B.1 E.5.8B.2 E.5.8B.3 E.5.8B.4	UNIT 2: Earth, Sun, and Moon Patterns	E.5.8B.1 Analyze and interpret data from observations and research (e.g., from NASA, NOAA, or the USGS) to explain patterns in the location, movement, and appearance of the moon throughout a month and over the course of a year. E.5.8B.2 Develop and use a model of the Earth-Sun-Moon system to analyze the cyclic patterns of lunar phases, solar and lunar eclipses, and seasons. E.5.8B.3 Develop and use models to explain the factors (e.g., tilt, revolution, and angle of sunlight) that result in Earth’s seasonal changes. E.5.8B.4 Obtain information and analyze how our understanding of the solar system has evolved over time (e.g., Earth-centered model of Aristotle and Ptolemy compared to the Sun-centered model of Copernicus and Galileo).	<u>GRADE 4: UNIT 6</u> LESSONS 1 – 5 PP. 297 – 344
10 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAYS; UNIT TEST – 1 DAY					
FEB 28 – MAR 4	5	REVIEW		REVIEW – 1 ST TERM STANDARDS (3 DAYS) REVIEW – STARS AND THE SOLAR SYSTEM (5 DAYS) REVIEW – EARTH, MOON, AND SUN SYSTEMS (4 DAYS)	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
MAR 7 – 11	3RD TERM ASSESSMENT (CULMULATIVE UP TO THIS POINT)				
MARCH 14 – 18 SPRING BREAK					

FOURTH NINE WEEKS

WEEKS	INSTRUCTIONAL DAYS	PERFROMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
MAR 21 – APR 1	10	VARIED	REVIEW PRIORITY STANDARDS	REVIEW OF STANDARDS (LIFE SCIENCE)	MAAP REVIEW
APR 4 – 15	10	VARIED	REVIEW PRIORITY STANDARDS	REVIEW PRIORITY STANDARDS (EARTH AND SPACE SCIENCE)	MAAP REVIEW
APR 18 – 29	10	VARIED	REVIEW PRIORITY STANDARDS	REVIEW PRIORITY STANDARDS (PHYSICAL SCIENCE)	MAAP REVIEW
MAY 2 – 6	MAAP SCI ASSESSMENT				
MAY 9 – 13	5	REVIEW		REVIEW SEPs	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
MAY 16 – 20	REVIEW SEPs 4 TH TERM/FINAL ASSESSMENT				

*Enrichment objectives are marked with an asterisk. While they may not be tested per say, please use these performance objectives to explore and use their higher order thinking skills. Students should be provided a safe environment for failure without consequence, which is one of the most powerful drivers in learning. Providing many opportunities for students to fail, learn, and try again, with appropriate levels of support, fosters a deeper level of understanding and greater student interest and engagement. (MS CCRS, p. 13)

*If you do not finish covering standards by the end of the 3rd 9 weeks, we encourage you to use the 4th 9 weeks to finish covering these standards to prepare our young scientists for the MAAP SCI ASSESSMENT FOR GRADE 5 and for the next grade!

MAAP-SCI Grade 5 Blueprint

These blueprints correlate to the performance objectives found in the *Mississippi College- and Career-Readiness Standards for Science* beginning with school year 2018-2019.

Content Strand/Disciplinary Core Idea	Number of Total Performance Objectives	Number of Items
Life Science	6	8-10
<i>Ecology and Interdependence</i>	<i>6</i>	
Physical Science	18	19-26
<i>Organization of Matter and Chemical Interactions</i>	<i>12</i>	
<i>Motions, Forces, and Energy</i>	<i>6</i>	
Earth and Space Science	10	10-14
<i>Earth and the Universe</i>	<i>8</i>	
<i>Earth's Resources</i>	<i>2</i>	
TOTAL SCORED ITEMS		40
Field-Test Items		10
TOTAL TEST		50

All science assessments will utilize an embedded field-test design and will consist of Multiple Choice (MC) items and Technology-Enhanced (TE) items which are described below.

Item Type	Points	Description
Multiple Choice (MC)	1	Each has four response options, only one of which is correct; used to assess a variety of skill and content levels; each of these items is worth one point.
Technology-Enhanced (TE)	1 Or 2	Each is designed to elicit evidence of a broad range of student understanding; student interacts with enhanced features of these computer-delivered, <u>auto-scorable</u> test items to show understanding of skills and concepts; includes the drag-and-drop, hot-spot, number line, data displays, matching interactions, drop-down menus, multiple answer MC, and text entry responses; these items are scored on a 0-1 or 0-2-point scale using item-specific scoring rules.

Please Note: The TE items are similar in style to the item format in the MAAP – Math assessments. Science does **not** currently have performance task items.