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**	**PERFROMACNCE 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**	**PERFROMACNCE 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.	**GRADE 4: UNIT 8 LESSONS 1 – 4 PP. 391 – 420 GRADE 5: UNIT 13 LESSONS 2 – 3 PP. 595 – 612**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY; UNIT TEST – 1 DAY					
DEC 13 – 14	**2**	**REVIEW**	**REVIEW 1ST TERM STANDARDS – 1 DAY REVIEW 2ND 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**	**PERFROMACNCE 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.*	**GRADE 5: UNIT 13 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.	**GRADE 5: UNIT 12 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).	**GRADE 4: UNIT 6 LESSONS 1 – 5 PP. 297 – 344**
10 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAYS; UNIT TEST – 1 DAY					
FEB 28 – MAR 4	**5**	**REVIEW**	→	**REVIEW – 1ST 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 ASSSESSMENT (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 4TH 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!

Starting 2021-2022 School Year

MAAP

Assessment Blueprint

Science Grade 5

This blueprint describes the content and structure of an assessment and defines the ideal percentage of operational test items by reporting category for the Mississippi Academic Assessment Program (MAAP).

Content Strand/Disciplinary Core Idea	MS CCRS Standards Available for Assessment				Percentage of Points by Reporting Category
Life Science					**18% - 22%**
Ecology and Interdependence	L.5.3.A; L.5.3.B *(6 objectives)*				
Physical Science					**42% - 58%**
Organization of Matter and Chemical Interactions	P.5.5A; P.5.5B; P.5.5C *(12 objectives)*				
Motions, Forces, and Energy	P.5.6 *(6 objectives)*				
Earth and Space Science					**22% - 31%**
Earth and the Universe	E.5.5A; E.5.8B *(8 objectives)*				
Earth's Resources	E.5.10 *(2 objectives)*				
Operational Items	**40**	**Total Points**	**45**		**100%**
Field Test Items	10	**Total Testing Time**			**180 Minutes (3 Hours)**
Total Items	**50**				

- The Depth of Knowledge (DOK) level of items across the operational test form will be tracked to have as much variety as possible. The goal is for 65-85% of the items on the form to be DOK level 2 and approximately 5-10% of the items on the form to be DOK level 1 and DOK level 3 combined. However, we recognize that standard distribution, item types, and item statistics take priority when building the form.
- All science assessments will utilize an embedded field-test design and will consist of
  - Multiple Choice (MC) items including 1 answer/4 options and multi-select 2-4 answers/many options; and
  - Technology-Enhanced (TE) items.
- The TE items are designed to elicit evidence of a broad range of student understanding; student interacts with enhanced features of these computer-delivered, ***auto-scorable*** test items to show understanding of skills and concepts; includes drag-and-drop, hot-spot, bar graphs, data displays, matching interactions, text highlights, text entry, and drop-down menus. These items are scored on a 0-1 or 0-2 point scale using item-specific scoring rules.