SIXTH GRADE SCIENCE
PACING GUIDE/PROGRESS MONITORING
2021 – 2022

SIXTH GRADE THEME: STRUCTURE AND FUNCTION

WEST BOLIVAR CONSOLIDATED SCHOOL DISTRICT

BIG GOAL: Students use an integrated science curriculum to develop and plan controlled investigations and create more explicit and detailed models and explanations. Students must have opportunities to develop the skills necessary to engage in scientific and technical reasoning that are necessary for success in college, careers, and citizenship.

FIRST NINE WEEKS					
WEEKS	**INSTRUCTIONAL DAYS**	**PERFROMACNCE OBJ(S).**	**ACADEMIC FOCUS**	**OBJECTIVE STATEMENTS – MS CCRS**	**SCIENCE FUSION UNIT RESOURCES**
AUG 5 – 13	**7**	**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 16 – 27	**10**	**L.6.1.1 L.6.1.5 L.6.1.6**	**Characteristics of Life Levels of Organization**	**L.6.1.1** Use argument supported by evidence in order to distinguish between living and non-living things, including viruses and bacteria. **L.6.1.5** Provide evidence that organisms are unicellular or multicellular. **L.6.1.6** Develop and use models to show relationships among the increasing complexity of multicellular organisms (cells, tissues, organs, organ systems, organisms) and how they serve the needs of the organism.	**MODULE A: UNIT 1 LESSONS 1 – 2 PP. 4 – 23**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
AUG 30 – SEPT 10	**10**	**L.6.1.2 L.6.1.3 L.6.1.4**	**Cell Theory/ Cell Structure and Function**	**L.6.1.2** Obtain and communicate evidence to support the cell theory. **L.6.1.3** Develop and use models to explain how specific cellular components (cell wall, cell membrane, nucleus, chloroplast, vacuole, and mitochondria) function together to support the life of prokaryotic and eukaryotic organisms to include plants, animals, fungi, protists, and bacteria (not to include biochemical function of cells or cell part). **L.6.1.4** Compare and contrast different cells in order to classify them as a protist, fungus, plant, or animal.	**MODULE A: UNIT 1 LESSONS 3 – 5 PP. 24 – 61**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
SEPT 13 – 24	**10**	**L.6.4.1 L.6.4.2**	**Classification**	**L.6.4.1** Compare and contrast modern classification techniques (e.g., analyzing genetic material) to the historical practices used by scientists such as Aristotle and Carolus Linnaeus. **L.6.4.2** Use classification methods to explore the diversity of organisms in kingdoms (animals, plants, fungi, protists, bacteria). Support claims that	**MODULE B: UNIT 1 LESSON 5 PP. 52 – 69**

				organisms have shared structural and behavioral characteristics. (Explore characteristics of organisms in each Kingdom).	**MODULE B: UNIT 2** **LESSONS 1 – 3, 5** **PP. 52 – 69**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
SEPT 27 – OCT 1	**5**	**REVIEW**	→	**REVIEW – CHARACERISTICS OF LIFE (1 DAY)** **REVIEW – CELLS AND CLASSIFIACTION OF ORGANISMS (4 DAYS)**	**TEACHER LED PROBLEM OR PROJECT – BASED LESSON**
OCT 4 – 8	**5**	**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 11 – 22	**7**	**L.6.4.4** **L.6.4.5**	**Characteristics of Microscopic Organisms**	**L.6.4.4** Conduct investigations using a microscope or multimedia source to compare the characteristics of protists (euglena, paramecium, amoeba) and the methods they use to obtain energy and move through their environment (e.g., pond water). **L.6.4.5** Engage in scientific arguments to support claims that bacteria (Archaebacteria and Eubacteria) and viruses can be both helpful and harmful to other organisms and the environment.	**MODULE B: UNIT 1** **LESSON 5** **PP. 52 – 69** **TEACHER LED PROBLEM OR PROJECT – BASED LESSON**
5 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
OCT 25 – NOV 5	**10**	**L.6.3.1** **L.6.3.2** **L.6.4.3**	**Survival of Organisms** **Characteristics of Ecosystems**	**L.6.3.1** Use scientific reasoning to explain differences between biotic and abiotic factors that demonstrate what living organisms need to survive. **L.6.3.2** Develop and use models to describe the levels of organization within ecosystems (species, populations, communities, ecosystems, and biomes). **L.6.4.3** Analyze and interpret data from observations to describe how fungi obtain energy and respond to stimuli (e.g., bread mold, rotting plant material).	**MODULE D: UNIT 1** **LESSONS 1 – 4** **PP. 4 – 53** **MODULE A: UNIT 2** **LESSONS 3, 5** **PP. 112 – 121** **PP. 136 – 145**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
NOV 8 – 19	**10**	**L.6.3.3** **L.6.3.4** **L.6.3.5**	**Population Ecology** **Interactions Among Organisms**	**L.6.3.3** Analyze cause and effect relationships to explore how changes in the physical environment (limiting factors, natural disasters) can lead to population changes within an ecosystem. **L.6.3.4** Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships). **L.6.3.5** Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers	**MODULE D: UNIT 1** **LESSONS 1 – 4** **PP. 4 – 53** **MODULE A: UNIT 2** **LESSONS 3, 5** **PP. 112 – 121** **PP. 136 – 145**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
NOV 22 – 26					

THANKSGIVING BREAK					
NOV 29 – DEC 3	**5**	**L.6.3.4 L.6.3.5**	**Interactions Among Organisms Cont'd…**	**L.6.3.4** Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships). **L.6.3.5** Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers	**MODULE D: UNIT 1 LESSONS 1 – 4 PP. 4 – 53 MODULE A: UNIT 2 LESSONS 3, 5 PP. 112 – 121 PP. 136 – 145**
3 INSTRUCTIONAL DAYS; UNIT REVIEW – 2 DAYS					
DEC 6 – 14	**7**	**REVIEW**	→	**REVIEW – CHARACTERISTICS OF ORGANISMS (1 DAY) REVIEW – SURVIVAL OF ORGANISMS (2 DAYS) REVIEW – POPULATION ECOLOGY INTERACTIONS (2 DAYS) REVIEW – FIRST TERM STANDARDS (2 DAYS)**	**TEACHER LED PROBLEM OR PROJECT – BASED LESSON**
DEC 15 – 21	**2ND TERM ASSSESSMENT (CULMULATIVE UP TO THIS POINT)**				
DEC 22 – JAN 4 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.6.6.1 P.6.6.2**	**Newton's Laws of Motion Force**	**P.6.6.1** Use an engineering design process to create or improve safety devices (e.g. seat belts, car seats, helmets) by applying Newton's Laws of Motion. Use an engineering design process to define the problem, design, construct, evaluate, and improve the safety device.* **P.6.6.2** Use mathematical computation and diagrams to calculate the sum of forces acting on various objects.	**MODULE I: UNIT 1 LESSONS 1 – 4 PP. 4 – 51**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
JAN 24 – FEB 11	**15**	**P.6.6.3 P.6.6.4 P.6.6.5 P.6.6.6**	**Force and Motion**	**P.6.6.3** Investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces (e.g., athletic shoes, wheels on cars). **P.6.6.4** Compare and contrast magnetic, electric, frictional, and gravitational forces. **P.6.6.5** Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration. **P.6.6.6** Investigate forces (gravity, friction, drag, lift, thrust) acting on objects (e.g., airplane, bicycle helmets). Use data to explain the differences between the forces in various environments.	**MODULE I: UNIT 1 LESSONS 1 – 4 PP. 4 – 51**
11 INSTRUCTIONAL DAYS; UNIT REVIEW – 3 DAYS ; UNIT TEST – 1 DAY					

FEB 14 – 18	**5**	**P.6.6.7**	**Forms of Energy**	**P.6.6.7** Determine the relationships between the concepts of potential, kinetic, and thermal energy.	**MODULE H: UNIT 2 LESSONS 1 -4 PP. 97 – 147**
3 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
FEB 21 – 25	**5**	**REVIEW**	→	**REVIEW – FORCE AND MOTION (2 DAYS)** **REVIEW – NEWTON'S LAWS OF MOTION (2 DAYS)** **REVIEW – FORMS OF ENERGY (1 DAY)**	
FEB 28 – MAR 4	**3RD TERM ASSSESSMENT (CULMULATIVE UP TO THIS POINT)**				
MAR 7 – 11	**REVIEW SEPSs**				
MAR 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 – 25	**5**	**E.6.8.1** **E.6.8.3**	**Evolution of the Solar System** **Historical Models of the Solar System**	**E.6.8.1** Obtain, evaluate, and summarize past and present theories and evidence to explain the formation and composition of the universe. **E.6.8.3** Evaluate modern techniques used to explore our solar system's position in the universe.	**MODULE G: UNIT 1 LESSONS 1 – 3 PP. 1 – 44** **MODULE G: UNIT 2 LESSON 1 PP. 45 – 59**
11 INSTRUCTIONAL DAYS; UNIT REVIEW – 3 DAYS ; UNIT TEST – 1 DAY					
MAR 28 – APR 8	**10**	**E.6.8.2** **E.6.8.4**	**Components of the Solar System**	**E.6.8.2** Use graphical displays or models to explain the hierarchical structure (stars, galaxies, galactic clusters) of the universe. **E.6.8.4** Obtain and evaluate information to model and compare the characteristics and movements of objects in the solar system (including planets, moons, asteroids, comets, and meteors).	**MODULE G: UNIT 2 LESSONS 1 – 6 PP. 45 – 136**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
APR 11 – 22	**10**	**E.6.8.5** **P.6.6.3** **P.6.6.4** **P.6.6.5** **P.6.6.6**	**Gravity and Planetary Interactions**	**E.6.8.5** Construct explanations for how gravity affects the motion of objects in the solar system and tides on Earth. **P.6.6.2** Use mathematical computation and diagrams to calculate the sum of forces acting on various objects. **P.6.6.3** Investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces. **P.6.6.4** Compare and contrast magnetic, electric, frictional, and gravitational forces. **P.6.6.5** Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration.	**MODULE G: UNIT 2 LESSON 2 PP. 60 – 73**

				P.6.6.6 Investigate forces (gravity, friction, drag, lift, thrust) acting on objects (e.g., airplane, bicycle helmets). Use data to explain the differences between the forces in various environments.	
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
APR 25 – MAY 6	**10**	**E.6.8.6** **E.6.8.6** **E.6.8.7**	**Earth-Sun-Moon Systems** **Features of the Sun**	**E.6.8.6** Design models representing motions within the Sun-Earth-Moon system to explain phenomena observed from the Earth's surface (positions of celestial bodies, day and year, moon phases, solar and lunar eclipses, and tides) **E.6.8.6** Design models representing motions within the Sun-Earth-Moon system to explain phenomena observed from the Earth's surface (positions of celestial bodies, day and year, moon phases, solar and lunar eclipses, and tides) **E.6.8.7** Analyze and interpret data from the surface features of the Sun (e.g., photosphere, corona, sunspots, prominences, and solar flares) to predict how these features may affect Earth.	**MODULE G: UNIT 3** **LESSONS 1 – 3** **PP. 137 – 182**
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
MAY 9 – 13	**5**	**REVIEW**		**REVIEW – MODELS OF THE SOLAR SYSTEM (1 DAYS)** **REVIEW – COMPONENTS OF THE SOLAR SYSTEM (1 DAY)** **REVIEW – GRAVITY AND PLANETARY INTERACTIONS (1 DAY)** **REVIEW – EARTH-MOON-SUN SYSTEMS (2 DAYS)**	**TEACHER LED PROBLEM OR PROJECT – BASED LESSON**
MAY 16 – 20	**5**	**4TH TERM ASSESSMENT/FINAL EXAM**			

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 next grade!