

**SEVENTH GRADE SCIENCE
PACING GUIDE
2021 – 2022**




**WEST BOLIVAR
CONSOLIDATED SCHOOL DISTRICT**

SEVENTH GRADE THEME: SYSTEMS AND CYCLES


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

FIRST NINE WEEKS					
WEEKS	INSTRUCTIONAL DAYS	PERFORMACNCE OBJ(S). SEP(s)	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
AUG 5 – 13	7		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/REVIEW
AUG 16 – 27	10	L.7.3.1 L.7.3.2 L.7.3.3 L.7.3.4 L.7.3.5	Life on Earth	L.7.3.1 Analyze diagrams to provide evidence of the importance of the cycling of water, oxygen, carbon, and nitrogen through ecosystems to organisms. L.7.3.2 Analyze and interpret data to explain how the processes of photosynthesis, and cellular respiration (aerobic and anaerobic) work together to meet the needs of plants and animals. L.7.3.3 Use models to describe how food molecules (carbohydrates, lipids, proteins) are processed through chemical reactions using oxygen (aerobic) to form new molecules. L.7.3.4 Explain how disruptions in cycles (e.g., water, oxygen, carbon, and nitrogen) affect biodiversity and ecosystem services (e.g., water, food, and medications) which are needed to sustain human life on Earth. L.7.3.5 Design solutions for sustaining the health of ecosystems to maintain biodiversity and the resources needed by humans for survival (e.g., water purification, nutrient recycling, prevention of soil erosion, and prevention or management of invasive species).*	MODULE D: UNIT 2 LESSONS 3 - 4 PP. 88 – 109 MODULE A: UNIT 1 LESSONS 2, 5 – 6 PP.14 – 23 PP. 50 – 79
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
AUG 30 – SEPT 10	10	P.7.5C.1 P.7.5C.2	The Periodic Table	P.7.5C.1 Develop and use models that explain the structure of an atom.	

		<p>P.7.5C.3 P.7.5C.4 P.7.5C.5 P.7.5C.6</p>		<p>P.7.5C.2 Use informational text to sequence the major discoveries leading to the current atomic model. P.7.5C.3 Collect, organize, and interpret data from investigations to identify and analyze the relationships between the physical and chemical properties of elements, atoms, molecules, compounds, solutions, and mixtures. P.7.5C.4 Predict the properties and interactions of elements using the periodic table (metals, non-metals, reactivity, and conductors). P.7.5C.5 Describe concepts used to construct chemical formulas (e.g. CH₄, H₂O) to determine the number of atoms in a chemical formula. P.7.5C.6 Using the periodic table, make predictions to explain how bonds (ionic and covalent) form between groups of elements (e.g., oxygen gas, ozone, water, table salt, and methane).</p>	<p>MODULE H: UNIT 3 LESSONS 1 – 4 PP. 156 - 203</p>
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
<p>SEPT 13 – 24</p>	<p>10</p>	<p>P.7.5A.1 P.7.5A.2 P.7.5A.3 P.7.5B.1 P.7.5B.2 P.7.5B.3</p>	<p>Physical and Chemical Properties</p>	<p>P.7.5A.1 Collect and evaluate qualitative data to describe substances using physical properties (state, boiling/melting point, density, heat/electrical conductivity, color, and magnetic properties). P.7.5A.2 Analyze and interpret qualitative data to describe substances using chemical properties (the ability to burn or rust). P.7.5A.3 Compare and contrast chemical and physical properties (e.g., combustion, oxidation, pH, solubility, reaction with water). P.7.5B.1 Make predictions about the effect of temperature and pressure on the relative motion of atoms and molecules (speed, expansion, and condensation) relative to recent breakthroughs in polymer and materials science (e.g. self-healing protective films, silicone computer processors, pervious/porous concrete). P.7.5B.2 Use evidence from multiple scientific investigations to communicate the relationships between pressure, volume, density, and temperature of a gas. P.7.5B.3 Ask questions to explain how density of matter (observable in various objects) is affected by a change in heat and/or pressure.</p>	<p>MODULE H: UNIT 1 LESSONS 1 - 2 PP. 4 - 33</p>
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
<p>SEPT 27 – OCT 1</p>	<p>5</p>	<p>REVIEW</p>		<p>REVIEW – LIFE ON EARTH (1 DAY) PERIODIC TABLE – (2 DAYS) PHYSICAL AND CHEMICAL PROPERTIES – (2 DAYS)</p>	
<p>OCT 4 – 8</p>	<p>1ST TERM ASSESSMENT (CUMULATIVE UP TO THIS POINT)</p>				

SECOND NINE WEEKS

WEEKS	INSTRUCTIONAL DAYS	PERFROMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
OCT 11 – 22	10	P.7.5D.1 P.7.5D.2	Chemical Reactions	<p>P.7.5D.1 Analyze evidence from scientific investigations to predict likely outcomes of chemical reactions.</p> <p>P.7.5D.2 Design and conduct scientific investigations to support evidence that chemical reactions (e.g., cooking, combustion, rusting, decomposition, photosynthesis, and cellular respiration) have occurred.</p> <p>P.7.5D.3 Collect, organize, and interpret data using various tools (e.g., litmus paper, pH paper, cabbage juice) regarding neutralization of acids and bases using common substances.</p> <p>P.7.5D.4 Build a model to explain that chemical reactions can store (formation of bonds) or release energy (breaking of bonds).</p>	<p>MODULE H: UNIT 4 LESSON 1 PP. 212 – 223</p> <p>MODULE H: UNIT 5 LESSONS 2 – 3 PP. 276 – 307</p>
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
OCT 25 – NOV 5	10	P.7.5E.1 P.7.5E.2 P.7.5E.3	Law of Conservation of Matter	<p>P.7.5E.1 Conduct simple scientific investigations to show that total mass is not altered during a chemical reaction in a closed system. Compare results of investigations to Antoine-Laurent Lavoisier’s discovery of the law of conservation of mass.</p> <p>P.7.5E.2 Analyze data from investigations to explain why the total mass of the product in an open system appears to be less than the mass of reactants.</p> <p>P.7.5E.3 Compare and contrast balanced and unbalanced chemical equations to demonstrate the number of atoms does not change in the reaction.</p>	<p>MODULE H: UNIT 1 LESSON 3 PP. 34 – 45</p> <p>MODULE H: UNIT 4 LESSON 1 PP. 212 – 223</p>
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
NOV 8 – 19	10	E.7.9C.1 E.7.9C.2	Earth’s Tilt	<p>E.7.9C.1 Construct models and diagrams to illustrate how the tilt of Earth’s axis results in differences in intensity of sunlight on the Earth’s hemispheres throughout the course of one full revolution around the Sun.</p> <p>E.7.9C.2 Investigate how variations of sunlight intensity experienced by each hemisphere (to include the equator and poles) create the four seasons.</p>	<p>MODULE G: UNIT 3 LESSON 1 PP. 140 – 151</p>
8 INSTRUCTIONAL DAYS; UNIT REVIEW – 1 DAY ; UNIT TEST – 1 DAY					
NOV 22 – 26					
THANKSGIVING BREAK					
NOV 29 – DEC 3	5	REVIEW		REVIEW – CHEMICAL REACTIONS	
DEC 6 – 14	7	REVIEW		REVIEW – CONSERVATION OF MATTER (4 DAYS) REVIEW – EARHT’S TILT (3 DAYS)	
DEC 15 – 21	2ND TERM ASSESSMENT				
(CUMULATIVE UP TO THIS POINT)					
DEC 22 – JAN 4					
WINTER BREAK					

THIRD NINE WEEKS					
WEEKS	INSTRUCTIONAL DAYS	PERFORMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
JAN 6 – 28	15	E.7.9A.1 E.7.9A.2 E.7.9A.3 E.7.9A.4 E.7.9A.5 E.7.9A.6 E.7.9A.7	Weather and Climate	E.7.9A.1 Analyze and interpret weather patterns from various regions to differentiate between weather and climate. E.7.9A.2 Analyze evidence to explain the weather conditions that result from the relationship between the movement of water and air masses. E.7.9A.3 Interpret atmospheric data from satellites, radar, and weather maps to predict weather patterns and conditions. E.7.9A.4 Construct an explanation for how climate is determined in an area using global and surface features (e.g. latitude, elevation, shape of the land, distance from water, global winds and ocean currents). E.7.9A.5 Analyze models to explain the cause and effect relationship between solar energy and convection and the resulting weather patterns and climate conditions. E.7.9A.6 Research and use models to explain what type of weather (thunderstorms, hurricanes, and tornadoes) results from the movement and interactions of air masses, high and low pressure systems, and frontal boundaries. E.7.9A.7 Interpret topographic maps to predict how local and regional geography affect weather patterns and make them difficult to predict.	MODULE F: UNIT 4 LESSONS 1 – 6 PP. 154 – 237
12 INSTRUCTIONAL DAYS; UNIT REVIEW – 2 DAYS ; UNIT TEST – 1 DAY					
JAN 31 – FEB 18	15	E.7.9B.1 E.7.9B.2 E.7.9B.3	Climate Change	E.7.9B.1 Read and evaluate scientific or technical information assessing the evidence and bias of each source to explain the causes and effects of climate change. E.7.9B.2 Interpret data about the relationship between the release of carbon dioxide from burning fossil fuels into the atmosphere and the presence of greenhouse gases. E.7.9B.3 Engage in scientific argument based on current evidence to determine whether climate change happens naturally or is being accelerated through the influence of man.	MODULE F: UNIT 4 LESSON 7 PP. 238 – 255
12 INSTRUCTIONAL DAYS; UNIT REVIEW – 2 DAYS ; UNIT TEST – 1 DAY					
FEB 21 – 25	5	REVIEW		REVIEW – WEATHER AND CLIMATE CHANGE	
FEB 28 – MAR 1	3RD TERM ASSESSMENT (CUMULATIVE UP TO THIS POINT)				
MAR 7 – 11	REVIEW SEPs				

FOURTH NINE WEEKS

WEEKS	INSTRUCTIONAL DAYS	PERFORMACNCE OBJ(S).	ACADEMIC FOCUS	OBJECTIVE STATEMENTS – MS CCRS	SCIENCE FUSION UNIT RESOURCES
MAR 21 – 25	5	VARIED	REVIEW 1 ST 9 WEEKS STANDARDS	REVIEW 1 ST 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
MAR 28 – APR 1	5	VARIED	REVIEW 1 ST 9 WEEKS STANDARDS	REVIEW 1 ST 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
APRL 4 – 8	5	VARIED	REVIEW 2 ND 9 WEEKS STANDARDS	REVIEW 2 ND 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
APR 11 – 15	5	VARIED	REVIEW 2 ND 9 WEEKS STANDARDS	REVIEW 2 ND 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
APR 18 – 22	5	VARIED	REVIEW 3 RD 9 WEEKS STANDARDS	REVIEW 3 RD 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
APR 25 – 29	5	VARIED	REVIEW 4 TH 9 WEEKS STANDARDS	REVIEW 3 RD 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
MAY 2 – 6	5	VARIED	REVIEW 4 TH 9 WEEKS STANDARDS	REVIEW 4 TH 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
MAY 9 – 13	5	VARIED	REVIEW 4 TH 9 WEEKS STANDARDS	REVIEW 4 TH 9 WEEKS STANDARDS	TEACHER LED PROBLEM OR PROJECT – BASED LESSON/REVIEW
MAY 16 – 20	RECAP SEPs 4TH TERM ASSESSMENT				

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!

NOTE: 7TH GRADE ACCELERATED – STUDENTS SHOULD COMPLETE OE MAJOR PROJECT EACH NINE WEEKS. THE TOPIC AND NATURE OF THE PROJECT CAN BE CHOSEN AT YOUR DISCRETION.