Gulfport School District
PACING GUIDE

SEVENTH GRADE
SCIENCE

Content Strands: Inquiry (I), Life (L), Earth and Space (E), and Physical Science (P)		
QTR	**Competency/Objective**	
	Design and conduct a scientific investigation utilizing appropriate process skills and technology. (I)	
1-4 Tested 4	1a	Design, conduct, and draw conclusions from an investigation that includes using experimental controls. (DOK 3)
1-4 Tested 4	1b	Discriminate among observations, inferences, and predictions. (DOK 1)
1-4 Tested 1* Tested 2* Tested 4* Tested 4*	1c	Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). (DOK 2) • 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) • Tools (e.g., pH indicators, stopwatches) • Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter) • Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)
1-4 Tested 4*	1d	Organize data in tables and graphs and analyze data to construct explanations and draw conclusions. (DOK 3)
1-4 Tested 4.1*	1e	Communicate results of scientific procedures and explanations through a variety of written and graphic methods. (DOK 2)
1-4 Tested 4	1f	Explain how science and technology are reciprocal. (DOK 1)
1-4 Tested 4.1*	1g	Develop a logical argument to explain why scientists often review and ask questions about the results of other scientists' work. (DOK 3)
1-4 Tested 4	1h	Make relationships between evidence and explanations. (DOK 2)
	Develop an understanding of chemical and physical changes, interactions involving energy, and forces that affect motion of objects. (P)	
2	2a	Identify patterns (e.g., atomic mass, increasing atomic numbers) and common characteristics (metals, nonmetals, gasses) of elements found in the periodic table of elements. (DOK 2)
2	2b	Categorize types of chemical changes, including synthesis and decomposition reactions, and classify acids and bases using the pH scale and indicators. (DOK 2)
2	2c	Compare the force (effort) required to do the same amount of work with and without simple machines (e.g., levers, pulleys, wheel and axle, inclined planes). (DOK 2)

*These skills are tested during the indicated Quarter and correlated with the Mathematics pacing guide.

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	Develop an understanding of chemical and physical changes, interactions involving energy, and forces that affect motion of objects. (P)	
2	2d	Describe cause and effect relationships of electrical energy. (DOK 2) • Energy transfers through an electric circuit (using common pictures and symbols) • Electric motor energy transfers (e.g., chemical to electrical to mechanical motion) and generators
2	2e	Distinguish how various types of longitudinal and transverse waves (e.g., water, light, sound, seismic) transfer energy. (DOK 2) • Frequency • Wavelength • Speed • Amplitude
2	2f	Describe the effects of unbalanced forces on the speed or direction of an object's motion. (DOK 2) • Variables that describe position, distance, displacement, speed, and change in speed of an object • Gravity, friction, drag, lift, electric forces, and magnetic forces
	Distinguish the characteristics of living things and explain the interdependency between form and function using the systems of the human organism to illustrate this relationship. (L)	
4	3a	Assess how an organism's chances for survival are influenced by adaptations to its environment. (DOK 2) • The importance of fungi as decomposers • Major characteristics of land biomes (e.g., tropical rainforests, temperate rainforests, deserts, tundra, coniferous forests/taiga, and deciduous forests) • Adaptations of various plants to survive and reproduce in different biomes
3	3b	Classify the organization and development of living things to include prokaryotic (e.g., bacteria) and eukaryotic organisms (e.g., protozoa, certain fungi, multicellular animals and plants). (DOK 2)
4	3c	Evaluate how health care technology has improved the quality of human life (e.g., computerized tomography [CT], artificial organs, magnetic resonance imaging [MRI], ultrasound). (DOK 3)

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	Distinguish the characteristics of living things and explain the interdependency between form and function using the systems of the human organism to illustrate this relationship. (L)	
3	3d	Compare and contrast reproduction in terms of the passing of genetic information (DNA) from parent to offspring. (DOK 2) • Sexual and asexual reproduction • Reproduction that accounts for evolutional adaptability of species • Mitosis and meiosis • Historical contributions and significance of discoveries of Gregor Mendel and Thomas Hunt Morgan as related to genetics
3	3e	Compare and contrast how organisms obtain and utilize matter and energy. (DOK 1) • How organisms use resources, grow, reproduce, maintain stable internal conditions (homeostasis) and recycle waste • How plants break down sugar to release stored chemical energy through respiration
	Describe the properties and structure of the sun and the moon with respect to the Earth. (E)	
1	4a	Justify the importance of Earth materials (e.g., rocks, minerals, atmospheric gases, water) to humans. (DOK 3)
1	4b	Explain the causes and effects of historical processes shaping the planet Earth (e.g., movements of the continents, continental plates, subduction zones, trenches, etc.) (DOK 2)
1	4c	Describe the causes and effects of heat transfer as it relates to the circulation of ocean currents, atmospheric movement, and global wind patterns (e.g., trade winds, the jet stream). Provide examples of how these global patterns can affect local weather. (DOK 2) • Characteristics of the Gulf Stream and other large ocean currents • Effects on climate in Eastern North America and Western Europe • Effects of heat transfer to the movement of air masses, high and low pressure areas, and fronts in the atmosphere
4	4d	Conclude why factors, such as lack of resources and climate can limit the growth of populations in specific niches in the ecosystem. (DOK 2) • Abiotic factors that affect population, growth, and size (quantity of light, water, range of temperatures, soil compositions) • Cycles of water, carbon, oxygen, and nitrogen in the environment Role of single-celled organisms (e.g., phytoplankton) in the carbon and oxygen cycles

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	Describe the properties and structure of the sun and the moon with respect to the Earth. (E)	
1	4e	Research and develop a logical argument to support the funding of NASA's Space Programs. (DOK 3) • Space exploration (e.g., telescopes, radio telescopes, X-ray telescopes, cameras, spectro-meters, etc.) • Spinoffs (e.g., laser, pacemaker, dehydrated food, flame retardant clothing, global positioning system [GPS], satellite imagery, global weather information, diagnostic imagery) • Mississippi's contributions to the space industry
1	4f	Distinguish the structure and movements of objects in the solar system. (DOK 2) • Sun's atmosphere (corona, chromosphere, photosphere and core) • How phenomena on the sun's surface (e.g., sunspots, prominences, solar wind, solar flares) affect Earth (e.g., auroras, interference in radio and television communication) • Eclipses relative to the position of the sun, moon, and Earth • Contributions of Copernicus, Galileo, and Kepler in describing the solar system
4	4g	Research and evaluate the use of renewable and nonrenewable resources and critique efforts in the United States including (but not limited) to Mississippi to conserve natural resources and reduce global warming. (DOK 3) • How materials are reused in a continuous cycle in ecosystems, (e.g., Mississippi Ethanol Gasification Project to develop and demonstrate technologies for the conversion of biomass to ethanol) • Benefits of solid waste management (reduce, reuse, recycle) • Conserving renewable and nonrenewable resources (e.g., The Recycling and Solid Waste Reduction Program in Jackson, MS)
4	4h	Predict weather events by analyzing clouds, weather maps, satellites, and various data. (DOK 3)