Gulfport School District
PACING GUIDE

FOURTH GRADE
SCIENCE

Content Strands: Inquiry (I), Life (L), Earth and Space (E), and Physical Science (P)		
QTR	**Competency/Objective**	
	Explain and use skills necessary to conduct scientific inquiry. (I)	
1-4 Tested 1-4	1a	Form hypotheses and predict outcomes of problems to be investigated. (DOK 3)
1-4 Tested 1-4*	1b	Use the senses and simple tools to gather qualitative information about objects or events (size, shape, color, texture, sound, position, change). (DOK 1)
1-4 Tested 3* Tested 1-4 Tested 1-4* Tested 3* Tested 3*	1c	Demonstrate the accurate use of simple tools to gather and compare information. (DOK 1) • Tools (English rulers [to the nearest eighth of an inch], metric rulers [to the nearest centimeter] • Hand lenses, microscopes, balances, calculators) • Tools (anemometers, rain gauges) • Types of data (height, mass/weight, temperature, length, distance, volume, area, perimeter) • Tools (thermometers, scales, clocks,)
1-4 Tested 1-4	1d	Use simple sketches, diagrams, tables, charts, and writing to draw conclusions and communicate data results. (DOK 2)
1-4 Tested 1-4	1e	Interpret and describe patterns of data using drawings, diagrams, charts, tables, graphs, and maps. (DOK 2)
1-4 Tested 1-4	1f	Explain why scientists and engineers often work in teams with different individuals doing different things that contribute to the results. (DOK 2)
1-4 Tested 1-4	1g	Draw conclusions about important steps (e.g., making observations, asking questions, trying to solve a problem, etc.) that led to inventions and discoveries. (DOK 3)
	Use the properties of objects and materials, position and motion of objects, and transfer of energy to develop an understanding of physical science concepts. (P)	
1-4 Tested Earth Q1 Atoms Q2 Cells Q4	2a	Recognize that materials may be composed of parts that are too small to be seen without magnification. (DOK 1)
*These skills are tested during the indicated Quarter and correlated with the Mathematics pacing guide.		

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QTR	**Competency/Objective**	
	Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky. (E)	
1	4a	Classify sedimentary, metamorphic, and igneous rocks. (DOK 2)
1	4b	Compare and contrast Earth's geological features and the changes caused by external forces. (DOK 2) • Bodies of water, beaches, ocean ridges, continental shelves, plateaus, faults, canyons, sand dunes, and ice caps • External forces including heat, wind, and water • Movement of continental plates
1	4c	Investigate, record, analyze, and predict weather by observing, measuring with simple weather instruments, recording weather data, sky conditions, and weather events using: • wind vane, thermometer, temperature, precipitation (DOK 2) • rain gauge, anemometer, hygrometer, barometer (DOK 2) • past patterns to predict future patterns (DOK 2)
1	4e	Compare and contrast the seasons and explain why seasons vary at different locations on Earth. (DOK 2)
1	4f	Describe objects in the universe including their movement. (DOK 2) • Physical features of the Moon (craters, plains, mountains) • Appearance and movement of Earth and its Moon (e.g., waxing/waning of the moon and lunar/solar eclipses) • Why a planet can be seen in different constellations (locations) at different times

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QTR	**Competency/Objective**	
	Explain and use skills necessary to conduct scientific inquiry. (I)	
1-4 Tested 1-4	1a	Form hypotheses and predict outcomes of problems to be investigated. (DOK 3)
1-4 Tested 1-4*	1b	Use the senses and simple tools to gather qualitative information about objects or events (size, shape, color, texture, sound, position, change). (DOK 1)
1-4 Tested 3* Tested 1-4 Tested 1-4* Tested 3* Tested 3*	1c	Demonstrate the accurate use of simple tools to gather and compare information. (DOK 1) • Tools (English rulers [to the nearest eighth of an inch], metric rulers [to the nearest centimeter] • Hand lenses, microscopes, balances, calculators) • Tools (anemometers, rain gauges) • Types of data (height, mass/weight, temperature, length, distance, volume, area, perimeter) • Tools (thermometers, scales, clocks,)
1-4 Tested 1-4	1d	Use simple sketches, diagrams, tables, charts, and writing to draw conclusions and communicate data results. (DOK 2)
1-4 Tested 1-4	1e	Interpret and describe patterns of data using drawings, diagrams, charts, tables, graphs, and maps. (DOK 2)
1-4 Tested 1-4	1f	Explain why scientists and engineers often work in teams with different individuals doing different things that contribute to the results. (DOK 2)
1-4 Tested 1-4	1g	Draw conclusions about important steps (e.g., making observations, asking questions, trying to solve a problem, etc.) that led to inventions and discoveries. (DOK 3)
	Use the properties of objects and materials, position and motion of objects, and transfer of energy to develop an understanding of physical science concepts. (P)	
1-4 Tested Earth Q1 Atoms Q2 Cells Q4	2a	Recognize that materials may be composed of parts that are too small to be seen without magnification. (DOK 1)
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QTR	**Competency/Objective**	
	Use the properties of objects and materials, position and motion of objects, and transfer of energy to develop an understanding of physical science concepts. (P)	
2	2b	Distinguish between physical and chemical changes and between objects composed of a single substance from those composed of more than one substance. (DOK 2)
2	2c	Determine the causes and effects of forces on motion. (DOK 2) • Force exerted over a distance causes work to be done and that the result (work) is the product of force and distance • Friction on moving objects and actions that increase or decrease friction • Momentum and inertia
2	2d	Explain how energy flowing through an electrical circuit can be converted from electrical energy to light, sound, or heat energy. (DOK1) • Parts of an electric circuit and resulting actions when circuits are opened or closed • Construction and uses of electromagnets • Energy transferred through an electrical circuit to a bulb or bell to its surroundings as light, sound, and heat (thermal) energy
2	2e	Describe how light behaves (travels in a straight line, is absorbed, reflected, refracted, or appears transparent or translucent). (DOK 1)
2	2f	Investigate and draw conclusions about the relationship between the rate of vibrating objects and the pitch of the sound. (DOK 3)
2	2g	Describe how heat flows from a warm object to a cold one and categorize examples of materials that may or may not be used as insulators. (DOK 2)

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	Explain and use skills necessary to conduct scientific inquiry. (I)	
1-4 Tested 1-4	1a	Form hypotheses and predict outcomes of problems to be investigated. (DOK 3)
1-4 Tested 1-4*	1b	Use the senses and simple tools to gather qualitative information about objects or events (size, shape, color, texture, sound, position, change). (DOK 1)
1-4 Tested 3* Tested 1-4 Tested 1-4* Tested 3* Tested 3*	1c	Demonstrate the accurate use of simple tools to gather and compare information. (DOK 1) • Tools (English rulers [to the nearest eighth of an inch], metric rulers [to the nearest centimeter] • Hand lenses, microscopes, balances, calculators) • Tools (anemometers, rain gauges) • Types of data (height, mass/weight, temperature, length, distance, volume, area, perimeter) • Tools (thermometers, scales, clocks,)
1-4 Tested 1-4	1d	Use simple sketches, diagrams, tables, charts, and writing to draw conclusions and communicate data results. (DOK 2)
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1-4 Tested 1-4	1f	Explain why scientists and engineers often work in teams with different individuals doing different things that contribute to the results. (DOK 2)
1-4 Tested 1-4	1g	Draw conclusions about important steps (e.g., making observations, asking questions, trying to solve a problem, etc.) that led to inventions and discoveries. (DOK 3)
	Use the properties of objects and materials, position and motion of objects, and transfer of energy to develop an understanding of physical science concepts. (P)	
1-4 Tested Earth Q1 Atoms Q2 Cells Q4	2a	Recognize that materials may be composed of parts that are too small to be seen without magnification. (DOK 1)
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Content Strands: Inquiry (I), Life (L), Earth and Space (E), and Physical Science (P)		
QTR	**Competency/Objective**	
	Analyze the characteristics, structures, life cycles, and environments of organisms. (L)	
3	3a	Describe the cause and effect relationships that explain the diversity and evolution of organisms over time. (DOK 2) • Observable traits due to inherited or environmental adaptations • Variations in environment (over time and from place to place) • Variations in species as exemplified by fossils • Extinction of a species due to insufficient adaptive capability in the face of environmental changes
3	3e	Analyze food webs to interpret how energy flows from the sun. (DOK 2)
	Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky. (E)	
3	4c	Investigate, record, analyze, and predict weather by observing, measuring with simple weather instruments, recording weather data, sky conditions, and weather events using • precipitation (to the nearest ⅛ in. and cm)
3	4d	Describe how human activities have decreased the capacity of the environment to support some life forms. (DOK 2) • Reducing the amount of forest cover • Increasing the amount of chemicals released into the atmosphere • Farming intensively
3	4g	Summarize the process that results in deposits of fossil fuels and conclude why fossil fuels are classified as nonrenewable resources. (DOK 2)

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	Explain and use skills necessary to conduct scientific inquiry. (I)	
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1-4 Tested 3* Tested 1-4 Tested 1-4* Tested 3* Tested 3*	1c	Demonstrate the accurate use of simple tools to gather and compare information. (DOK 1) • Tools (English rulers [to the nearest eighth of an inch], metric rulers [to the nearest centimeter] • Hand lenses, microscopes, balances, calculators) • Tools (anemometers, rain gauges) • Types of data (height, mass/weight, temperature, length, distance, volume, area, perimeter) • Tools (thermometers, scales, clocks,)
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QTR	**Competency/Objective**	
	Analyze the characteristics, structures, life cycles, and environments of organisms. (L)	
4	3b	Classify the organs and functions of the nervous, circulatory, and respiratory systems of the body. (DOK 1)
4	3c	Compare characteristics of organisms, including growth and development, reproduction, acquisition and use of energy, and response to the environment. (DOK 2) • Life cycles of various animals to include complete and incomplete metamorphosis • Plant or animal structures that serve different functions in growth, adaptation, and survival • Photosynthesis
4	3d	Distinguish the parts of plants as they relate to sexual reproduction and explain the effects of various actions on the pollination process (e.g., wind, water, insects, adaptations of flowering plants, negative impacts of pesticides). (DOK 2)
4	3f	Describe the structural and functional relationships among the cells of an organism. (DOK 2) • Benefit from cooperating • Vary greatly in appearance • Perform very different roles