GRADE 4 Science
INSTRUCTIONAL PACING GUIDE

Based on 45 Minutes of Instruction Daily

Standard 4-1: Scientific Inquiry

The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.

NOTE: Inquiry indicators should be embedded within each content standard and taught throughout the school year.

4-1.1	Classify observations as either quantitative or qualitative.
4-1.2	Use appropriate instruments and tools (including a compass, an anemometer, mirrors, and a prism) safely and accurately when conducting simple investigations.
4-1.3	Summarize the characteristics of a simple scientific investigation that represent a fair test (including a question that identifies the problem, a prediction that indicates a possible outcome, a process that tests one manipulated variable at a time, and results that are communicated and explained).
4-1.4	Distinguish among observations, predictions, and inferences.
4-1.5	Recognize the correct placement of variables on a line graph.
4-1.6	Construct and interpret diagrams, tables, and graphs made from recorded measurements and observations.
4-1.7	Use appropriate safety procedures when conducting investigations.

DATES TAUGHT:	INDICATORS:	SUGGESTED PACING:	RESOURCES:
FIRST NINE WEEKS			
4-4 Weather **The student will demonstrate an understanding of weather patterns and phenomena. (Earth Science)**			
Primary Resource: DSM Weather Instruments Kit			
	4-4.5 Carry out the procedures for data collecting and measuring weather conditions (including wind speed and direction, precipitation, and temperature) by using appropriate tools and instruments	9 days Continue throughout unit	**DSM Weather Instruments** Activity 1, 2, 3, 4, 5
	4-4.1 Summarize the processes of the water cycle including (evaporation, condensation, precipitation, and runoff). 4-4.6 Predict weather from data collected through observation and measurement.	2 days Review throughout unit	**DSM Weather Instruments** Activity 6
	4-4.1 Summarize the processes of the water cycle including (evaporation, condensation, precipitation, and runoff).	4 days Review throughout unit	**DSM Weather Instruments** Activity 7, 8
	4-4.2 Classify clouds according to their three basic types (cumulus, cirrus, and stratus) and summarize how clouds form.	3 days Review throughout unit	**DSM Weather Instruments** Activity 9, 10
	4-4.1 Summarize the processes of the water cycle including (evaporation, condensation, precipitation, and runoff).	1 day w/ daily observations for a week	**DSM Weather Instruments** Activity 11
	4-4.3 Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.	2 days	**DSM Weather Instruments** Activity 12
	4-4.4 Summarize the conditions and effects of severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) and related safety concerns.	5 days	**Macmillan South Carolina Science** pp.254-261 See S3 Curriculum at www.s2martcenter.org for lesson for 4-4.4
	ADMINISTER DSM WEATHER INSTRUMENTS END OF MODULE ASSESSMENT	1 day	**DSM Weather Instruments**
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SECOND NINE WEEKS			
4-2 Astronomy **The student will demonstrate an understanding of the properties, movements, and locations of objects in the Solar System. (Earth Science)**			
Primary Resource: Insights Sun, Earth and Moon Kit			
	4.3.1 Recall that Earth is one of many planets in the solar system that orbit the Sun.	3 days	**Macmillan South Carolina Science** pp. 206-209 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.1
	4-3.2 Compare the properties (including the type of surface and atmosphere) and the location of Earth to the Sun, which is a star, and the Moon.	2 days	**Macmillan South Carolina Science** pp. 194-197 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.2
	4.3.7 Interpret the change in the length of shadows during the day in relation to the position of the Sun in the sky.	10 days	**Insights Sun, Earth and Moon** LE 1,2,3 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.7
	4-3.3 Explain how the Sun affects Earth.	6-8 days Revisit throughout the unit	**Insights Sun, Earth and Moon** LE 4 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.3
	4-3.5 Explain how the rotation of Earth results in day and night.	7 days	**Insights Sun, Earth and Moon** LE 5 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.5

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SECOND NINE WEEKS (CONTINUED)			
	4.3.4 Explain how the tilt of Earth's axis and the revolution around the Sun results in the seasons of the year.	8 days	**Insights Sun, Earth and Moon** LE 6,7 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.4
	4-3.6 Illustrate the phases of the Moon and the Moon's effect on ocean tides.	8 days Continue moon observations throughout the month	**Insights Sun, Earth and Moon** LE 3,8 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.6
	4-3.8 Recognize the purpose of telescopes.	1 day	**Macmillan South Carolina Science** pp. 210 See S3 Curriculum at www.s2martcenter.org for lesson for 4-3.8
	ADMINISTER INSIGHTS SUN, EARTH, MOON END OF MODULE ASSESSMENT	1 day	
ADMINISTER DISTRICT COMMON ASSESSMENT TEST 1 **NOTE: IT IS NECESSARY TO REFERENCE THE SUPPORT DOCUMENT WHEN TEACHING THESE STANDARDS. SUPPORT DOCUMENT LANGUAGE AND VOCABULARY MUST BE USED WHILE CONDUCTING LESSONS AND INVESTIGATIONS.**			
THIRD NINE WEEKS			
4-5 Magnetism and Electricity **The student will demonstrate an understanding of the properties of light and electricity. (Physical Science)** **Primary Resources: FOSS Magnetism and Electricity, DSM Color and Light**			
	Complete Pre-test (Survey)	1 day	**FOSS Magnetism & Electricity Assessment**
	4-5.9 Summarize the properties of magnets and electromagnets (including polarity, attraction/repulsion, and strength).	6 days	**FOSS Magnetism & Electricity Investigation 1** parts 1,2, 3 and 4 *Read after completing Inv. 1, Part 1: FOSS Science Stories, "Magnus Gets Stuck" (Follow Science Stories folio guide – p. 2-3 – for guided reading questions and extensions). *Read after completing Inv. 1, Part 2: FOSS Science Stories, "Magnificent Magnetic Models" (Follow Science Stories folio guide – p. 4-5 – for guided reading questions and extensions). *Read after completing Inv. 1, Part 4: FOSS Science Stories, "How Magnets Attract" and "Make A Compass" (Follow Science Stories folio guide – p. 6-9 – for guided reading questions and extensions).
Complete I-Check for Investigation 1 (1 day)			
	4-5.5 Explain how electricity, as a form of energy, can be transformed into other forms of energy (including light, heat, and sound).	4 Days	**FOSS Magnetism & Electricity Investigation 2** parts 1,2, and 4
	4-5.6 Summarize the function of the components of complete circuits (including wire, switch, battery, and light bulb).		**FOSS Magnetism & Electricity Investigation 2** parts 1,2,3, and 4 *Read after completing Inv. 2, Part 3: FOSS Science Stories, "Making Static" and "A Fictional Interview w/ Benjamin Franklin" (Follow Science Stories folio guide – p. 10-11 – for guided reading questions and extensions). *Read after completing Inv. 2, Part 4: FOSS Science Stories, "Two Reference Sources About Edison" (Follow Science Stories folio guide – p. 12-13 –for guided reading questions and extensions)

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DATES TAUGHT:	INDICATORS:		SUGGESTED PACING:
THIRD NINE WEEKS (CONTINUED)			
	4-5.8 Classify materials as either conductors or insulators of electricity.	2 days	**FOSS Magnetism & Electricity Investigation 2** part 3
Complete I-Check for Investigation 2 (1 day)			
	4-5.7 Illustrate the path of electric current in series and parallel circuits.	5 days	**FOSS Magnetism & Electricity Investigation 3** parts 1,2 and 3 *Read <u>after</u> completing Inv. 3, Part 1: FOSS Science Stories, "Illuminating Teamwork" (Follow Science Stories folio guide – p. 14-15 – for guided reading questions and extensions). *Read <u>after</u> completing Inv. 3, Part 2: FOSS Science Stories, "A True Pioneer" (Follow Science Stories folio guide – p. 16-17 – for guided reading questions and extensions).
Complete I-Check for Investigation 3 (1 day)			
	4-5.10 Summarize the factors that affect the strength of an electromagnet.	7 days	**FOSS Magnetism & Electricity Investigation 4** parts 1,2, and 3 *Read <u>after</u> completing Inv. 4, Part 1: FOSS Science Stories, "From Rags to Science" (Follow Science Stories folio guide – p. 18-19 – for guided reading questions and extensions). *Read <u>after</u> completing Inv. 4, Part 2: FOSS Science Stories, "How Electromagnetism Stopped a War" (Follow Science Stories folio guide – p. 20-21 – for guided reading questions and extensions). *Read <u>after</u> completing Inv. 4, Part 3: FOSS Science Stories, "Magnets and Electricity in Your Life: Motors & Generators" (Follow Science Stories folio guide – p. 22-23 – for guided reading questions and extensions). *Read <u>after</u> completing Inv. 4, Part 3: FOSS Science Stories, "Magnets & Electricity in Your Life: Magnets & Electricity" (Follow Science Stories folio guide – p. 24-25 – for guided reading questions and extensions). **FOSS Magnetism & Electricity Investigation 5** parts 1,2, and 3 *Read <u>after</u> completing Inv. 5, Part 2: FOSS Science Stories, "Morse Gets Clicking" (Follow Science Stories folio guide – p. 26-27 – for guided reading questions and extensions).
Complete I-Check for Investigation 4 (1 day)			
Complete Final FOSS Summative Assessment (1 day)			
	4-5.1 Summarize the basic properties of light (including brightness and colors)	10 days	***NOTE: Complete all investigations in the order they appear in the kit's Teacher's Guide.** **DSM Color & Light** Investigations 1, 10, 11, 12, and 13 See S3 Curriculum at www.s2martcenter.org for lesson for 4-5.1
	4-5.3 Summarize how light travels and explain what happens when it strikes and object (including reflection, refraction, and absorption)		**DSM Color & Light** Investigations 1, 2, 3, 10, 12, and 13 See S3 Curriculum at www.s2martcenter.org for lesson for 4-5.3

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DATES TAUGHT:	INDICATORS:	SUGGESTED PACING:	RESOURCES:
THIRD NINE WEEKS (CONTINUED)			
	4-5.2 Illustrate the fact that light, a form of energy, is made up of many different colors.	3 days	**DSM Color & Light** Investigations 4, 5, 6, 10, 11, 12, and 13 See S3 Curriculum at www.s2martcenter.org for lesson for 4-5.2
	4-5.4 Compare how light behaves when it strikes transparent, translucent, and opaque materials.		**DSM Color & Light** Investigations 5, 6, 10, 11, 12, and 13 See S3 Curriculum at www.s2martcenter.org for lesson for 4-5.4
Complete Final DSM Color & Light End of Module Assessment (1 day)			
ADMINISTER DISTRICT COMMON ASSESSMENT TEST 2 **NOTE: IT IS NECESSARY TO REFERENCE THE SUPPORT DOCUMENT WHEN TEACHING THESE STANDARDS. SUPPORT DOCUMENT LANGUAGE AND VOCABULARY MUST BE USED WHILE CONDUCTING LESSONS AND INVESTIGATIONS.**			
FOURTH NINE WEEKS			
4-2 Animals and Their Environments **The student will demonstrate an understanding of the characteristics and patterns of behavior that allow organisms to survive in their own distinct environments. (Life Science)** • **Note - Order live organisms so arrival coincides with investigations.**			
	4-2.1 Classify organisms into major groups (including plants or animals, flowering or non-flowering plants, and vertebrates (fish, amphibians, reptiles, birds, and mammals) according to their physical characteristics.	5 days	**Macmillan South Carolina Science** Plants: pp. 48-64 Invertebrates: pp. 78-83 Vertebrates: pp. 90-94 See S3 Curriculum at www.s2martcenter.org for lesson for 4-2.1
	4-2.5 Explain how an organism's patterns of behavior are related to its environment (including the kinds and number of other organisms present, the availability of food and other resources, and the physical characteristics of the environment.	22 Days	**STC Animal Studies Kit** Lessons 1, 2, 3, 9, 10, 11, 12, 13, 14, 15, 16, 17
	4-2.3 Explain how humans and other animals use their senses and sensory organs to detect signals from the environment and how their behaviors are influenced by these signals.		**STC Animal Studies Kit** Lessons 1, 2, 3, 4, 5, 6, 7, 8, 9
	4-2.2 Explain how the characteristics of distinct environments (including swamps, rivers, and streams, tropical rainforests, deserts, and the polar regions) influence the variety of organisms in each.		**STC Animal Studies Kit** Lesson 3, 4, 5, 6, 7, and 8 Kit does not address specific environments listed in indicator. See S3 Curriculum at www.s2martcenter.org for lesson for 4-2.2 parts A-E
	4-2.4 Distinguish between the characteristics of an organism that are inherited and those that are acquired over time.	5 days	**STC Animal Studies Kit** Lesson 10 **Macmillan South Carolina Science** pp. 104-106 See S3 Curriculum at www.s2martcenter.org for lesson for 4-2.4
	4-2.6 Explain how organisms cause changes in their environment.	6 days	**More Picture-Perfect Science Lessons** Wiggling Worms Page 79 **Macmillan South Carolina Science** pp. 158-164 See S3 Curriculum at www.s2martcenter.org for lesson for 4-2.6
ADMINISTER STC ANIMAL STUDIES END OF MODULE ASSESSMENT (1 day)			
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NOTE: THIS INSTRUCTIONAL GUIDE IS BUILT TO ASSIST IN PROVIDING TIME FOR REVIEW AND REMEDIATION FOR STATE ASSESSMENT.

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