

Science Pacing Guide

5th Grade



Physical Science	
Time Frame	7 ½ weeks
Instructional Days	August 10-September 30, 2015
Georgia Content Focus Standards	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>Habits of Mind / Nature of Science – See Page 3</p> <p>S5P1. Students will verify that an object is the sum of its parts.</p> <ol style="list-style-type: none"> a. Demonstrate that the mass of an object is equal to the sum of its parts by manipulating and measuring different objects made of various parts. b. Investigate how common items have parts that are too small to be seen without magnification. <p>S5P2 Students will explain the difference between a physical change and a chemical change.</p> <ol style="list-style-type: none"> a. Investigate physical changes by separating mixtures and manipulating (cutting, tearing, folding) paper to demonstrate examples of physical change. b. Recognize that the changes in state of water (water vapor/steam, liquid, ice) are due to temperature differences and are examples of physical change. c. Investigate the properties of a substance before, during, and after a chemical reaction to find evidence of change. </div> <div style="width: 48%;"> <p>Habits of Mind / Nature of Science – See Page 3</p> <p>S5P3. Students will investigate the electricity, magnetism, and their relationship.</p> <ol style="list-style-type: none"> a. Investigate static electricity. b. Determine the necessary components for completing an electric circuit. c. Investigate common materials to determine if they are insulators or conductors of electricity. d. Compare a bar magnet to an electromagnet. </div> </div>

Quarterly Benchmark Assessment Window,
October 5-9, 2015

Earth Science	
Time Frame	8 ½ weeks
Instructional Days	October 1-December 4, 2015
Georgia Content Focus Standards	<p>Habits of Mind / Nature of Science – See Page 3</p> <p>SSE1. Students will identify surface features of the Earth caused by constructive and destructive processes.</p> <ul style="list-style-type: none"> • Identify surface features caused by constructive processes. <ul style="list-style-type: none"> ○ Deposition (Deltas, sand dunes, etc.) ○ Earthquakes ○ Volcanoes ○ Faults • Identify and find examples of surface features caused by destructive processes. <ul style="list-style-type: none"> ○ Erosion (water --- rivers and oceans, wind) ○ Weathering ○ Impact of organisms ○ Earthquake ○ Volcano • Relate the role of technology and human intervention in the control of constructive and destructive processes. Examples include but are not limited to <ul style="list-style-type: none"> ○ Seismological studies, ○ Flood control, (dams, levees, storm drain management, etc.) ○ Beach reclamation (Georgia coastal islands)

Quarterly Benchmark Assessment Window,
December 7-11, 2015

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Life Science					
Time Frame	11 weeks				
Instructional Days	December 7-March 4, 2016				
Georgia Content Focus Standards	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; background-color: #92d050;"><i>Habits of Mind / Nature of Science – See Page 3</i></th> <th style="width: 50%; background-color: #92d050;"><i>Habits of Mind / Nature of Science – See Page 3</i></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <p>S5L1. Students will classify organisms into groups and relate how they determined the groups with how and why scientists use classification.</p> <p>a. Demonstrate how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal).</p> <p>b. Demonstrate how plants are sorted into groups.</p> <p>S5L2. Students will recognize that offspring can resemble parents in inherited traits and learned behaviors.</p> <p>a. Compare and contrast the characteristics of learned behaviors and of inherited traits.</p> <p>b. Discuss what a gene is and the role genes play in the transfer of traits.</p> <p>Teacher note: Be sensitive to this topic since biological parents may be unavailable.</p> </td> <td style="vertical-align: top;"> <p>S5L3. Students will diagram and label parts of various cells (plant, animal, single-celled, multi-celled).</p> <p>a. Use magnifiers such as microscopes or hand lenses to observe cells and their structure.</p> <p>b. Identify parts of a plant cell (membrane, wall, cytoplasm, nucleus, chloroplasts) and of an animal cell (membrane, cytoplasm, and nucleus) and determine the function of the parts.</p> <p>c. Explain how cells in multi-celled organisms are similar and different in structure and function to single-celled organisms.</p> <p>S5L4. Students will relate how microorganisms benefit or harm larger organisms.</p> <p>a. Identify beneficial microorganisms and explain why they are beneficial.</p> <p>b. Identify harmful microorganisms and explain why they are harmful.</p> </td> </tr> </tbody> </table>	<i>Habits of Mind / Nature of Science – See Page 3</i>	<i>Habits of Mind / Nature of Science – See Page 3</i>	<p>S5L1. Students will classify organisms into groups and relate how they determined the groups with how and why scientists use classification.</p> <p>a. Demonstrate how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal).</p> <p>b. Demonstrate how plants are sorted into groups.</p> <p>S5L2. Students will recognize that offspring can resemble parents in inherited traits and learned behaviors.</p> <p>a. Compare and contrast the characteristics of learned behaviors and of inherited traits.</p> <p>b. Discuss what a gene is and the role genes play in the transfer of traits.</p> <p>Teacher note: Be sensitive to this topic since biological parents may be unavailable.</p>	<p>S5L3. Students will diagram and label parts of various cells (plant, animal, single-celled, multi-celled).</p> <p>a. Use magnifiers such as microscopes or hand lenses to observe cells and their structure.</p> <p>b. Identify parts of a plant cell (membrane, wall, cytoplasm, nucleus, chloroplasts) and of an animal cell (membrane, cytoplasm, and nucleus) and determine the function of the parts.</p> <p>c. Explain how cells in multi-celled organisms are similar and different in structure and function to single-celled organisms.</p> <p>S5L4. Students will relate how microorganisms benefit or harm larger organisms.</p> <p>a. Identify beneficial microorganisms and explain why they are beneficial.</p> <p>b. Identify harmful microorganisms and explain why they are harmful.</p>
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Formative Learning Assessment Window,
March 7-11, 2016

	Benchmark Review	Benchmark Review and Next Grade Preview
Time Frame	Approximately 15-20 days (3-4 weeks)	3 weeks
Instructional Days	March 14 until GMAS EOG Science	Post-testing Window through End of School Year
Georgia Content Focus Standards Review	Whole group, small group and individual benchmark review based on spiraled quarterly benchmark assessment data	Additional benchmark review for targeted non-proficiency students Fifth grade content enrichment activities



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Georgia Supporting Standards Descriptions

Habits of the Mind

S5CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

- a. Keep records of investigations and observations and do not alter the records later.
- b. Carefully distinguish observations from ideas and speculation about those observations.
- c. Offer reasons for findings and consider reasons suggested by others.
- d. Take responsibility for understanding the importance of being safety conscious.

S5CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.

- a. Add, subtract, multiply, and divide whole numbers mentally, on paper, and with a calculator.
- b. Use fractions and decimals, and translate between decimals and commonly encountered fractions – halves, thirds, fourths, fifths, tenths, and hundredths (but not sixths, sevenths, and so on) – in scientific calculations.
- c. Judge whether measurements and computations of quantities, such as length, area, volume, weight, or time, are reasonable answers to scientific problems by comparing them to typical values.

S5CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.

- a. Choose appropriate common materials for making simple mechanical constructions and repairing things.
- b. Measure and mix dry and liquid materials in prescribed amounts, exercising reasonable safety.
- c. Use computers, cameras and recording devices for capturing information.
- d. Identify and practice accepted safety procedures in manipulating science materials and equipment.

S5CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

- a. Observe and describe how parts influence one another in things with many parts.
- b. Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts.
- c. Identify patterns of change in things—such as steady, repetitive, or irregular change—using records, tables, or graphs of measurements where appropriate.
- d. Identify the biggest and the smallest possible values of something.

S5CS5. Students will communicate scientific ideas and activities clearly.

- a. Write instructions that others can follow in carrying out a scientific procedure.
- b. Make sketches to aid in explaining scientific procedures or ideas.
- c. Use numerical data in describing and comparing objects and events.
- d. Locate scientific information in reference books, back issues of newspapers and magazines, CD-ROMs, and computer databases.

S5CS6. Students will question scientific claims and arguments effectively.

- a. Support statements with facts found in books, articles, and databases, and identify the sources used.
- b. Identify when comparisons might not be fair because some conditions are different.

The Nature of Science

S5CS7. Students will be familiar with the character of scientific knowledge and how it is achieved. Students will recognize that:

- a. Similar scientific investigations seldom produce exactly the same results, which may differ due to unexpected differences in whatever is being investigated, unrecognized differences in the methods or circumstances of the investigation, or observational uncertainties.
- b. Some scientific knowledge is very old and yet is still applicable today.

S5CS8. Students will understand important features of the process of scientific inquiry. Students will apply the following to inquiry learning practices:

- a. Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.
- b. Clear and active communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world.
- c. Scientists use technology to increase their power to observe things and to measure and compare things accurately.
- d. Science involves many different kinds of work and engages men and women of all ages and backgrounds.

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Quarterly Benchmark Assessments (cumulative)

Question Types

Q1 – 25 MC

Q2 – 30 MC

Q3 – 40 MC

Time

- No more than 60 minutes
- Must be scheduled during a single day test session

Georgia Milestones End of Grade Measures: Domain Structures and Content Weights	Domain	Approximate Weight	Units	Total Instructional Days
Science	Earth Science	30%	2	40
	Life Science	40%	3	55
	Physical Science	30%	1	35

Pertinent GMS Assessment Information

Question Types

- **75 Selected-response items**
 - 65- Operational items which contribute to student's criterion-referenced and/or norm-referenced score
 - 45 points- 45 items (criterion-referenced score/ proficiency designation only)
 - 10 points- 10 items (criterion-referenced score/proficiency designation **and** norm-referenced score)
 - 10 points- 10 items (norm-referenced score only)
 - 10- Field test items (Do not contribute to student's score)
 - Four answer choices
 - Incorrect choices, called distractors, usually reflect common errors
 - The student's task is to choose, from the alternatives provided, the best answer to the question posed in the stem (the question)

Time

- Two sections
- 70 minutes per section

Sections 1 and 2 must be scheduled to be administered on the same day in one test session