Florida Interim Assessment Item Bank and Test Platform

Item Specifications

Science
Grades K–2

FLORIDA DEPARTMENT OF EDUCATION
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TABLE OF CONTENTS

I. Introduction

A. Purpose of the Item Specifications 1
B. Scope 1
C. Standards Alignment 1
1. Next Generation Sunshine State Standards 1
2. Common Core State Standards 1

II. Criteria for Item Development

A. Overall Considerations for Item Development. 2
B. Item Contexts 2
C. Use of Media. 3
D. Item Style and Format 3
E. Item Types 5
1. Selected Response (SR) Items (1 point) 5
2. Gridded Response (GR) Items (1 point). 6
3. Short Response (SHR) Items (1 point) 6
4. Constructed Response (CR) Items (2 points) 6
5. Extended Response (ER) Items (4 points) 7
6. Essay Response (ESR) Items (6 points) 9
7. Performance Task (PT) Items (1–10 points) 9
F. Complex Stimuli and Reading Passages 10
G. Readability. 10
H. Cognitive Complexity 11
1. Overview 11
2. Levels of Depth of Knowledge for Science 11
I. Item Difficulty 14
J. Universal Design 14
K. Sample Items 14

III. Review Procedures for Florida Interim Assessment Item Bank Items

A. Review for Item Quality 14
B. Review for Bias and Sensitivity 14

IV. Guide to the Individual Benchmark Specifications

A. Benchmark Classification System 15
B. Common Core State Standard Classification System 15

V. Definitions of Benchmark Specifications 16

VI. Individual Benchmark Specifications

A. Kindergarten Item Specifications 17
B. Grade 1 Item Specifications 33
C. Grade 2 Item Specifications 44

Appendices

Appendix A: Sample Items 69
Appendix B: Common Core State Standard Connections 78

I. Introduction

The U.S. Department of Education awarded a Race to the Top grant to Florida in August 2010. An important component of this grant focused on the development of high-quality assessment items and balanced assessments for use by districts, schools, and teachers. The assessment items will be stored in the Florida Interim Assessment Item Bank and Test Platform (IBTP), a statewide secure system which allows Florida educators to search the item bank, export test items, and generate customized high-quality assessments for computer-based delivery or paper-and-pencil delivery. The IBTP allows Florida educators to determine what students know and are able to do relative to instruction on Florida's Next Generation Sunshine State Standards and the Common Core State Standards (CCSS).

A. Purpose of the Item Specifications

The *Item Specifications* define the expectations for content, standards alignment, and format of assessment items for the Item Bank and Test Platform. The *Item Specifications* are intended for use by item writers and reviewers in the development of high-quality assessment items.

B. Scope

The *Item Specifications* provide general and grade-specific guidelines for the development of all Grades K–2 Science assessment items available in the Florida Interim Assessment Item Bank.

C. Standards Alignment

Items developed for the Florida Interim Assessment Item Bank and Test Platform will align to the Next Generation Sunshine State Standards for Science and, where appropriate and applicable, the Common Core State Standards for Mathematics and Literacy in Science and Technical Subjects.

1. Next Generation Sunshine State Standards

Florida's Next Generation Sunshine State Standards (NGSSS) for Science provide the basis for science teaching and learning in Florida's public schools. For Grades K–8, the NGSSS are divided into benchmarks that identify what a student should know and be able to do at each grade level. The NGSSS are available at *http://www.floridastandards.org/homepage/index.aspx*.

2. Common Core State Standards

Appendix B of this document provides a list of the CCSS Mathematics and Literacy Standards associated with the Grades K–2 science courses. Assessment items for science should be aligned to one or more of the associated CCSS, whenever appropriate, in addition to the targeted science benchmark.

II. Criteria for Item Development

Science item writers for the Florida Interim Assessment Item Bank must have a comprehensive knowledge of science curriculum based on the Next Generation Sunshine State Standards and an understanding of the range of cognitive abilities of the target student population. Item writers should understand and consistently apply the guidelines established in this document. Item writers are expected to use their best judgment in writing items that measure the science benchmarks of the NGSSS and the CCSS, where appropriate, without introducing extraneous elements that reflect bias for or against a group of students.

A. Overall Considerations for Item Development

These guidelines are provided to ensure the development of high-quality assessment items for the Florida Interim Assessment Item Bank.

1. Each item should be written to measure primarily one NGSSS benchmark; however, other benchmarks may also be addressed for some item types.
2. Whenever possible, each item will also be aligned to a secondary CCSS Mathematics and/or Literacy standard applicable to a particular grade.
3. Items should be appropriate for students in terms of grade-level instruction, experience and difficulty, cognitive development, and reading level. The reading level of the test items should be on grade level. (Refer to the glossaries in CPALMS for each course.)
4. Of the assessment items associated with a given benchmark, 50% or more should meet or exceed the cognitive level (DOK) of the benchmark.
5. Each item should be written clearly and unambiguously to elicit the desired response.
6. Items should not disadvantage or exhibit disrespect to anyone in regard to age, gender, race, ethnicity, language, religion, socioeconomic status, disability, occupation, or geographic region.

B. Item Contexts

The context in which an item is presented is called the item context or scenario. These guidelines are provided to assist item writers with development of items within an appropriate context.

1. The item context should be designed to interest students at the targeted level. Scenarios should be appropriate for students in terms of grade-level experience and difficulty, cognitive development, and reading level.
2. The context should be directly related to the question asked. The context should lead the student cognitively to the question. Every effort should be made to keep items as concise as possible without losing cognitive flow or missing the overall idea or concept.
3. Information and/or data in items must be accurate and verifiable using reliable sources. Source documentation should accompany items as needed.

4. All item scenarios, graphics, diagrams, and illustrations must be age-, grade-, and experience-appropriate.
5. Item contexts and illustrations depicting individuals conducting laboratory investigations should include proper safety equipment and model safe laboratory procedures.
6. Scenarios describing scientific investigations should model current science methodology and adhere to the Intel International Science and Engineering Fair Rules and Guidelines unless otherwise noted in the benchmark clarification statements. These rules and guidelines can be found using the Document Library link at: *http://www.societyforscience.org/ISEF*.
7. Grades K–2 items and illustrations may use common primary school tools, including balances, batteries, beakers, compasses, eyedroppers, flashlights, globes, graduated cylinders, light bulbs, magnets, magnifying glasses or hand lenses, metric measuring tapes, metric rulers, microscopes, microscope slides, mirrors, models, safety goggles, spring scales, stopwatches, telescopes, test tubes, thermometers, topographic maps, and tuning forks.
8. The item content should be timely but not likely to become dated.

C. Use of Media

Media can be used to provide either necessary or supplemental information—that is, some media contain information that is necessary for answering the question, while other media support the context of the question. Items may include diagrams, illustrations, charts, tables, audio files, or video files unless otherwise noted in the Individual Benchmark Specifications.

1. Items should not begin with media. Media in items is always preceded by text.
2. All visual media (tables, charts, graphs, photographs, etc.) should be titled. Titles should be in all caps, boldfaced, and centered, and may be placed above or below the visual media.

D. Item Style and Format

This section presents stylistic guidelines and formatting directions that should be followed while developing items.

1. Items should be clear and concise and should use vocabulary and sentence structure appropriate for the assessed grade level. Writers should refer to the resources provided during item writer training and to the glossaries in CPALMS.
2. The words *most likely* or *best* should be used only when appropriate to the question.
3. At Grades K–2, temperatures should be given in degrees Celsius unless otherwise noted in the Individual Benchmark Specifications.
4. Metric units of measure should be used in scenarios addressing mass, length, weight, and/or volume. International System of Units (SI) should be used unless otherwise noted in the Individual Benchmark Specifications.

5. The first occurrence of units of measure should be written out in the item stem, e.g., kilograms (kg). In graphics, an abbreviation may be used (e.g., g or cm). To avoid confusion between the preposition *in* and the abbreviation for inches, only units of measure in graphics should be presented, e.g., height (cm) NOT height (in cm).
6. In titles of tables and charts and in labels for axes, the unit of measure should be included, preferably in lowercase and in parentheses, e.g., height (m).
7. Items requiring art should be to scale whenever possible. If not possible, a not-to-scale text box should be included at the bottom left of the art.
8. Graphics in items should be clearly labeled and contain all necessary information.
9. Items referring to new developments or discoveries should include phrases similar to *according to current knowledge* or *based on current knowledge*.
10. Items using the word *not* should emphasize the word *not* using all uppercase letters (e.g., Which of the following is NOT an example of . . .). The word *not* should be used sparingly.
11. As appropriate, boldface type should be used to emphasize key words in the item (e.g., **least**, **most**, **greatest**, **percent**, **best**).
12. Masculine pronouns should NOT be used to refer to both sexes. Name(s) should be used whenever possible to avoid gender-specific pronouns (e.g., instead of "The student will make changes so that he . . .", use "John and Maria will make changes so that they . . .").
13. Decimal numbers between –1 and 1 should have a leading zero.
14. SI units should be expressed in a single type of unit when possible (e.g., 1.4 kilograms instead of 1 kilogram 400 grams).
15. Commas should be used in numbers greater than or equal to 1,000 except for numbers having an SI unit. In this case, numbers with four digits should be presented without a comma or a space (e.g., 9960 meters). Numbers with more than four digits should be presented with a thin space inserted in place of a comma (e.g., 10 123 kilograms).
16. In most cases, scenarios involving elements, chemical formulas, or chemical symbols and/or equations should be written out followed by the abbreviation, e.g., carbon dioxide (CO_2).
17. In the item stem, values needed to compute answers should be presented as numerals.

E. Item Types

This section presents guidelines for development of the following types of items:

- Selected Response (SR)—1 point
- Gridded Response (GR)—1 point
- Short Response (SHR)—1 point
- Constructed Response (CR)—2 points
- Extended Response (ER)—4 points
- Essay Response (ESR)—6 points
- Performance Task (PT)—1–10 points

1. Selected Response (SR) Items (1 point)

Selected response items require students to choose an answer from the choices given. Each item consists of a stem and either three or four answer options, depending on the grade level (see #3 below). One of the answer options is the correct answer, and the remaining options are called distractors. Selected response items may also include a stimulus and/or passage.

1. SR items should take approximately one minute per item to answer.
2. SR items are worth one point each.
3. SR items for grades K, 1, and 2 should have three answer options (A, B, and C). SR items for all other grades and courses should have four answer options (A, B, C, and D).
4. SR items must have only one correct answer option.
5. During item development and review, the correct response should be indicated.
6. During item development and review, the rationale for distractors (incorrect answer choices) should be indicated. The rationale should include information explaining why a student would select that distractor.
7. Distractor rationales should represent computational or conceptual errors or misconceptions commonly made by students who have not mastered the assessed concepts.
8. Each distractor should be a believable answer (i.e., plausible, but incorrect).
9. All answer options should be written in a style appropriate to the question asked. For example, a "how" question should have answer options that explain how.
10. Options should have parallel structure whenever possible. Test item options should not have an outlier (e.g., an answer option that is significantly longer than or different from the other options).
11. Items should not be clued or answered by information in the stem or other options.

12. Options such as *none of the above*, *all of the above*, *not here*, *not enough information*, or *cannot be determined* should not be used as answer options.
13. If an option is a single word or a phrase, the option should start with a lowercase letter. If an option is a sentence, the sentence should be conventionally capitalized and punctuated. Options that are imperatives should be treated as sentences.
14. Answer options that are single words should be arranged in alphabetical or reverse alphabetical order.
15. Answer options that are phrases or sentences should be arranged from shortest to longest or longest to shortest.
16. Numerical answer options should be arranged in ascending or descending order.
17. Numerical answer options that represent relative magnitude or size should be arranged as they are shown in the stem or in some other logical order.
18. When the item requires the identification of a choice from the item stem, table, chart, or illustration, the options should be arranged as they are presented in the item stem, table, chart, or illustration.
19. If the answer options for an item are neither strictly numerical nor denominate numbers, the options should be arranged by the logic presented in the item, by alphabetical order, or by length.

2. Gridded Response (GR) Items (1 point)

Gridded response questions are worth 1 point each. The questions require students to solve problems and mark their answers by filling in the appropriate bubbles for the numbers on answer grids. Students must accurately complete the grid to receive credit for their answers.

3. Short Response (SHR) Items (1 point)

Short Response items usually include a scenario and instructions on how to respond. The recommended time allotment for a student to respond is 3 minutes. A complete answer is worth 1 point. There are no partial points for this item type.

4. Constructed Response (CR) Items (2 points)

Constructed response items usually include a scenario and instructions on how to respond. The recommended time allotment for a student to respond is 5 minutes. A complete answer is worth 2 points and a partial answer is worth

1 point. The constructed response holistic rubric and exemplar specific to each item are used for scoring as follows:

SCORING RUBRIC	
2	A score of two indicates that the student has demonstrated a thorough understanding of the scientific concepts and/or procedures embodied in the task. The student has completed the task correctly, in a scientifically sound manner. When required, student explanations and/or interpretations are clear and complete. The response may contain minor flaws that do not detract from the demonstration of a thorough understanding.
1	A score of one indicates that the student has provided a response that is only partially correct. For example, the student may arrive at an acceptable conclusion or provide an adequate interpretation, but may demonstrate some misunderstanding of the underlying scientific concepts and/or procedures. Conversely, a student may arrive at an unacceptable conclusion or provide a faulty interpretation, but could have applied appropriate and scientifically sound concepts and/or procedures.
0	A score of zero indicates that the student has not provided a response or has provided a response that does not demonstrate an understanding of the scientific concepts and/or procedures embodied in the task. The student's explanation may be uninterpretable, lack sufficient information to determine the student's understanding, contain clear misunderstandings of the underlying scientific concepts and/or procedures, or may be incorrect.

Exemplars: A specific exemplar should be developed for each constructed response item. Exemplars will be used as scoring guides and should be specific to the item, but not so specific as to discount multiple correct answers. Exemplars should include a clear and defensible description of the top score point, and contain straightforward language that is accurate, complete, and easy to interpret.

5. **Extended Response (ER) Items (4 points)**

Extended response items include a scenario and instructions on how to respond and are worth 4 score points. However, ER items are usually more complex than SHR items and 2-point CR items. The recommended time allotment for a student to respond is 10–15 minutes. The extended response holistic rubric and exemplar specific to each item are used for scoring as follows:

SCORING RUBRIC	
4	A score of four indicates that the student has demonstrated a thorough understanding of the scientific concepts and/or procedures embodied in the task. The student has completed the task correctly, used scientifically sound procedures, and provided clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from a demonstration of a thorough understanding.
3	A score of three indicates that the student has demonstrated an understanding of the scientific concepts and/or procedures embodied in the task. The student's response to the task is essentially correct, but the scientific procedures, explanations, and/or interpretations provided are not thorough. The response may contain minor flaws that reflect inattentiveness or indicate some misunderstanding of the underlying scientific concepts and/or procedures.
2	A score of two indicates that the student has demonstrated only a partial understanding of the scientific concepts and/or procedures embodied in the task. Although the student may have arrived at an acceptable conclusion or provided an adequate interpretation of the task, the student's work lacks an essential understanding of the underlying scientific concepts and/or procedures. The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures/processes, or faulty interpretations of results.
1	A score of one indicates that the student has demonstrated a very limited understanding of the scientific concepts and/or procedures embodied in the task. The student's response is incomplete and exhibits many flaws. Although the student's response has addressed some of the conditions of the task, the student has reached an inadequate conclusion and/or provided reasoning that is faulty or incomplete. The response exhibits many flaws or may be incomplete.
0	A score of zero indicates that the student has not provided a response or has provided a response that does not demonstrate an understanding of the scientific concepts and/or procedures embodied in the task. The student's explanation may be uninterpretable, lack sufficient information to determine the student's understanding, contain clear misunderstandings of the underlying scientific concepts and/or procedures, or may be incorrect.

Exemplars: A specific exemplar should be developed for each extended response item. Exemplars will be used as scoring guides and should be specific to the item, but not so specific as to discount multiple correct answers. Exemplars should include a clear and defensible description of the top score point, and contain straightforward language that is accurate, complete, and easy to interpret.

6. **Essay Response (ESR) Items (6 points)**

   Essay response items consist of asking a general question or providing a stimulus (such as an article or research paper on a relevant topic), and asking the students to express their thoughts or provide facts about the topic using logic and reason. Essay response items encompass a higher level of thinking and a broader range of skills that includes CCSS literacy standards, both of which are critical to future success in higher education and the workforce.

   In most cases, essay responses will go beyond a single paragraph in length, with a distinct introduction, body, and conclusion. An essay response will be worth a total of 6 points, with a rubric structure similar to that of the 4-point extended response. Students should be given about 20 to 30 minutes to complete each item.

   Exemplars: A specific exemplar should be developed for each essay response item. Exemplars will be used as scoring guides and should be specific to the item, but not so specific as to discount multiple correct answers. Exemplars should include a clear and defensible description of the top score point, and contain straightforward language that is accurate, complete, and easy to interpret.

7. **Performance Task (PT) Items (1–10 points)**

   Performance tasks are used to measure students' ability to *demonstrate* knowledge and skills from one or more benchmarks of the NGSSS and the CCSS. Specifically, performance tasks may require students to create a product, demonstrate a process, or perform an activity that demonstrates proficiency in science. They are evaluated using customized scoring rubrics, and each task may be worth 1–10 points. Performance tasks may have the following characteristics:

   1. Performance tasks may cover a short time period or may cover an extended period of time.
   2. Performance tasks must contain clear and explicit directions for understanding and completing the required component tasks and producing the objective output.
   3. All tasks, skills, and/or behaviors required by the performance tasks must be objective, observable, and measurable.
   4. All necessary equipment, materials, and resources should be referenced within the text of the performance task.
   5. Performance tasks should elicit a range of score points.
   6. Performance tasks generally require students to organize, apply, analyze, synthesize, and/or evaluate concepts.

7. Performance tasks may measure performance in authentic situations and outside the classroom, where appropriate and practical.
8. Typical response formats include demonstrations, laboratory performance, oral presentations, exhibits, or other products.
9. Every performance task requires a companion rubric to be used for scoring purposes. Rubrics should meet the following criteria:
    a. The rubrics and performance tasks should be developed in tandem to ensure compatibility.
    b. Rubrics must be specific to the individual requirements of each performance task; generic rubrics are not acceptable.
    c. The rubric must allow for efficient and consistent scoring.
    d. The customized rubric will also serve as an exemplar and should include a clear and defensible description of the top score point, and contain straightforward language that is accurate, complete, and easy to interpret.
    e. The highest score descriptor should allow for all foreseeable methods of correctly and thoroughly completing all requirements of the performance task.

A performance task may address one or more benchmarks or standards and may be composed of multiple items. The expectation is the performance tasks will include a demonstration of the student's mastery of the benchmark or standard. Items are expected to have rubrics.

F. Complex Stimuli and Reading Passages

The cross-curricular focus on aligning Florida IBTP items with the Common Core State Standards for mathematics and literacy make complex reading passages important components of the item bank. A passage is a segment of written work, followed by a series of questions that assess the student's comprehension of reading and the content presented. Some science items will be associated with a reading passage, while others will be standalone items.

G. Readability

Items must be written with readability in mind. In addition, vocabulary must be appropriate for the grade level being tested. The following sources provide information about the reading level of individual words:

Taylor, Stanford E. *EDL Core Vocabularies: Reading, Mathematics, Science, and Social Studies*. Austin, TX: Steck-Vaughn-EDL, 1989.

Mogilner, Alijandra. *Children's Writer's Word Book*. Cincinnati, OH: Writer's Digest Books, 1992.

H. Cognitive Complexity

1. Overview

Florida's adoption of the Common Core State Standards (CCSS) for Mathematics and English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects presents Florida with an opportunity to revise its current Depth of Knowledge (DOK) Model of Cognitive Complexity. More information about Florida's Depth of Knowledge levels is available online at http://www.cpalms.org/cpalms/dok.aspx.

2. Levels of Depth of Knowledge for Science

Interpreting and assigning Depth of Knowledge levels to objectives within science standards and assessment items is an essential requirement of alignment analysis. Please note that, in science, "knowledge" can refer to content knowledge, knowledge of science processes, and nature of science.

Level 1 (Recall) is the recall of information such as a fact, definition, or term, as well as performing a simple science process or procedure. Level 1 only requires students to demonstrate a rote response; use a well-known formula; follow a set, well-defined procedure (like a recipe); or perform a clearly defined series of steps. Standards that lend themselves to simple word problems that can be directly translated into and solved by a formula are considered Level 1. Some examples that represent but do not constitute all of Level 1 performance are:

- Recall or recognize a fact, term, or property.
- Represent in words or diagrams a scientific concept or relationship.
- Provide or recognize a standard scientific representation for simple phenomena.
- Perform a routine procedure, such as measuring length.
- Identify familiar forces (e.g., pushes, pulls, gravitation, friction, etc.)
- Identify objects and materials as solids, liquids, or gases.

Level 2 (Basic Application of Concepts & Skills) includes the engagement of some mental processing beyond recalling or reproducing a response. The content knowledge or process involved is more complex than in Level 1. Level 2 requires that students make some decisions as to how to approach the question or problem. Level 2 activities include making observations and collecting data; classifying, organizing, and comparing data; and representing and displaying data in tables, graphs, and charts.

Some action verbs, such as "explain," "describe," or "interpret," may be classified at different DOK levels, depending on the complexity of the action. For example, interpreting information from a simple graph, which requires reading information from the graph, is at Level 2. An activity that requires interpretation from a complex graph, such as making decisions regarding features of the graph that should be considered and how

information from the graph can be aggregated, is at Level 3. Some examples that represent but do not constitute all of Level 2 performance are:

- Specify and explain the relationships among facts, terms, properties, and variables.
- Identify variables, including controls, in simple experiments.
- Distinguish between experiments and systematic observations.
- Describe and explain examples and non-examples of science concepts.
- Select a procedure according to specified criteria, and perform it.
- Formulate a routine problem given data and conditions.
- Organize and represent data.

Level 3 (Strategic Thinking & Complex Reasoning) requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. The cognitive demands at Level 3 are complex and abstract. The complexity results not only from the fact that there could be multiple answers, a possibility for both Levels 1 and 2, but also because the multi-step task requires more demanding reasoning. In most instances, requiring students to explain their thinking is at Level 3; requiring a very simple explanation or a word or two should be at Level 2. An activity that has more than one possible answer and requires students to justify the response they give would most likely be at Level 3.

Experimental designs in Level 3 typically involve more than one dependent variable. Other Level 3 activities include drawing conclusions from observations; citing evidence and developing a logical argument for concepts; explaining phenomena in terms of concepts; and using concepts to solve non-routine problems. Some examples that represent but do not constitute all of Level 3 performance are:

- Identify research questions and design investigations for a scientific problem.
- Design and execute an experiment or systematic observation to test a hypothesis or research question.
- Develop a scientific model for a complex situation.
- Form conclusions from experimental data.
- Cite evidence that living systems follow the laws of conservation of mass and energy.
- Explain how political, social, and economic concerns can affect science, and vice versa.
- Create a conceptual or mathematical model to explain the key elements of a scientific theory or concept.
- Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.

- Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.

Level 4 (Extended Thinking & Complex Reasoning) standards and assessment items have the same high cognitive demands as Level 3 with the additional requirement that students work over an extended period of time or with extended effort. Students are required to make several connections—relating ideas within the content area or among content areas—and have to select or devise one approach among many alternatives for how the situation or problem can be solved. Standards, goals, and objectives can be stated in such a way as to expect students to perform extended thinking. Many, but not all, performance assessments and open-ended assessment activities requiring significant thought will be at Level 4.

Level 4 requires complex reasoning and an extended period of time either for a science investigation relevant to a standard or for carrying out the complex analysis and synthesis required of an assessment item. For example, a standard or performance task that calls for the student to use evidence from multiple fields of scientific inquiry in supporting a scientific claim might be classified at Level 4, depending upon the complexity of the analysis. In any event, an activity or performance task associated with a Level 4 standard will require an extended period of time for a student to accomplish.

It is important to reiterate that the extended time period is not a distinguishing factor if the required work is only repetitive and does not require the application of significant conceptual understanding and higher-order thinking. For example, an activity that calls upon a student to measure the water temperature from a river each day for a month before constructing a graph would be classified as at Level 2. On the other hand, an activity that calls upon a student to conduct a complex river study that requires taking into consideration a number of variables would be at Level 4. Some examples that represent but do not constitute all of a Level 4 performance are:

- Based on provided data from a complex experiment that is novel to the student, deduce the fundamental relationships among several variables.
- Conduct an investigation, from specifying a problem to designing and carrying out an experiment and analyzing data and forming conclusions.
- Explain how a particular scientific theory (e.g., evolution, plate tectonics, atomic theory, etc.) is supported by evidence from multiple lines of inquiry.
- Produce a detailed report of a scientific experiment or systematic observation, and infer conclusions based upon evidence obtained.
- Write a detailed history of the development of an important scientific concept (e.g., atomic theory, gravitation) and explain how current conceptions developed from prior ones.

I. Item Difficulty

Item writers will not be expected to make a prediction of difficulty for each item created. However, item writers should develop items that reflect a range of difficulty levels.

J. Universal Design

The application of universal design principles helps develop assessments that are usable to the greatest number of students, including students with disabilities and nonnative speakers of English. To support the goal of providing access to all students, the items in the Florida Interim Assessment Item Bank maximize readability, legibility, and compatibility with accommodations, and item development includes a review for potential bias and sensitivity issues.

Items must allow for the widest possible range of student participation. Item writers must attend to the best practices suggested by universal design, including, but not limited to,

- reduction in wordiness;
- avoidance of ambiguity;
- selection of reader-friendly construction and terminology; and
- consistently applied concept names and graphic conventions.

Universal design principles also inform decisions about item layout and design, including, but not limited to, type size, line length, spacing, and graphics.

K. Sample Items

Appendix A of this document contains a selection of sample items. The sample items represent a range of cognitive complexities and item types.

III. Review Procedures for Florida Interim Assessment Item Bank Items

Prior to being included in the Florida Interim Assessment Item Bank, items must pass several levels of review as part of the item development process.

A. Review for Item Quality

Assessment items developed for the Florida Interim Assessment Item Bank are reviewed by Florida educators, the FDOE, and the Item Bank contractors to ensure the quality of the items, including grade-level appropriateness, standards alignment, accuracy, and other criteria for overall item quality.

B. Review for Bias and Sensitivity

Items are reviewed by groups of Florida educators generally representative of Florida's geographic regions and culturally diverse population. Items are reviewed for the following kinds of bias: gender, racial, ethnic, linguistic, religious, geographic, and socioeconomic. Item reviews also include consideration of issues related to individuals with disabilities.

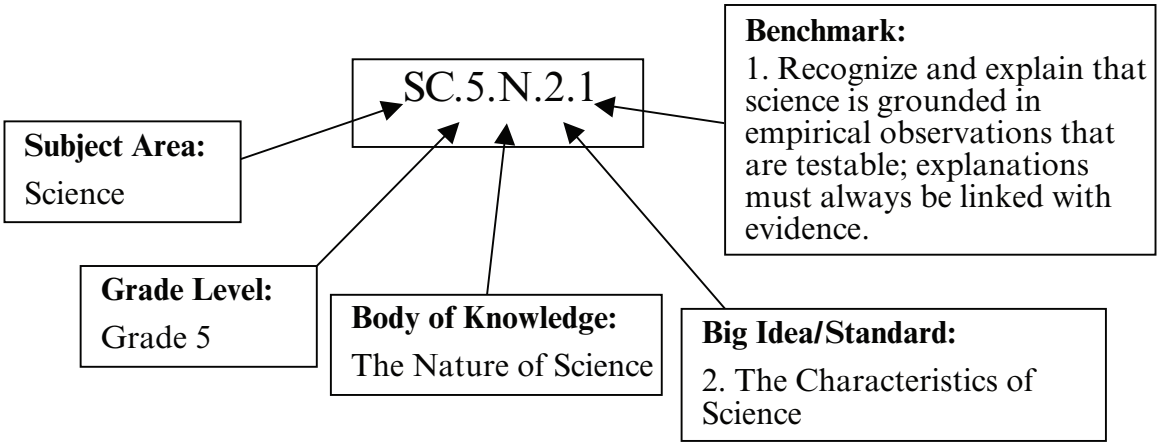
This review is to ensure that the primary purpose of assessing student achievement is not undermined by inadvertently including in the item bank any material that students, parents, or other stakeholders may deem inappropriate. Reviewers are asked to consider the variety of cultural, regional, philosophical, political, and religious backgrounds throughout Florida and to determine whether the subject matter will be acceptable to Florida students, their parents, and other members of Florida communities.

IV. Guide to the Individual Benchmark Specifications

A. Benchmark Classification System

Each benchmark in the NGSSS is labeled with a system of numbers and letters.

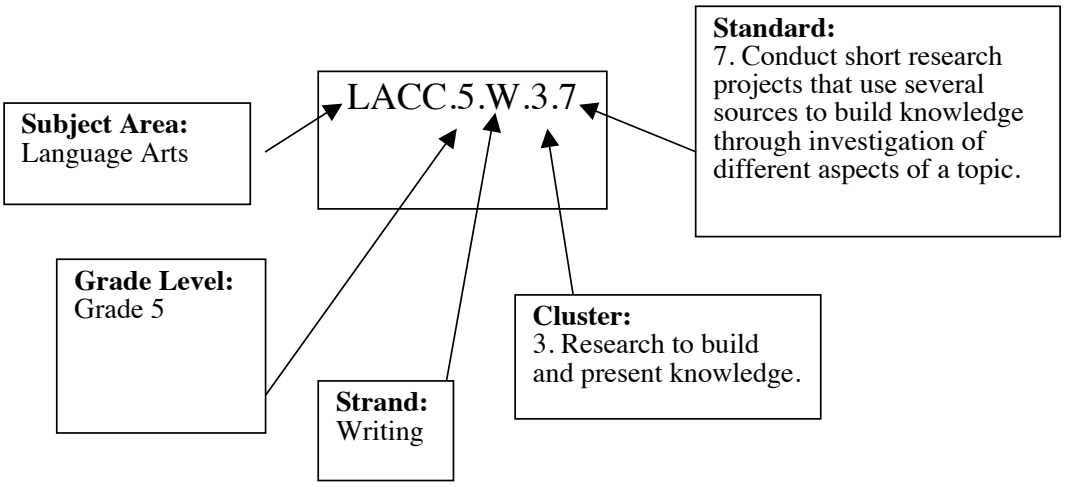
- The two letters in the *first position* of the code identify the **Subject Area**.
- The number(s) in the *second position* represent the **Grade Level**.
- The letter in the *third position* represents the **Body of Knowledge**.
- The number in the *fourth position* represents the **Big Idea/Standard**.
- The number in the *last position* identifies the specific **Benchmark**.



B. Common Core State Standard Classification System

Each standard in the CCSS is also labeled with a system of numbers and letters.

- The four letters in the *first position* of the code identify the **Subject Area**.
- The number(s) in the *second position* represent the **Grade Level**.
- The letter in the *third position* represents the **Strand**.
- The number in the *fourth position* represents the **Cluster**.
- The number in the *last position* identifies the specific **Standard**.



V. Definitions of Benchmark Specifications

The *Item Specifications* identify how the benchmarks in Florida's NGSSS and the CCSS are assessed by items in the Florida Interim Assessment Item Bank. For each assessed benchmark, the following information is provided in the Individual Benchmark Specifications section.

Body of Knowledge/ Strand	refers to the general category of science knowledge (Earth/Space Science, Life Science, Physical Science, and Nature of Science).
Standard/Big Idea	refers to a main idea or description statement of general expectations regarding knowledge and skill development.
Benchmark	refers to specific statements of expected student achievement.
Common Core State Standard Connections	refers to the Common Core Literacy and Mathematics Standards that are closely related to the benchmark. (See Appendix B for a list of CCSS standards associated with this course/grade band.)
Benchmark Clarifications	explain how achievement of the benchmark will be demonstrated by students. The clarification statements explain what students are expected to do when responding to the question.
Content Limits	define the range of content knowledge and degree of difficulty that should be assessed in the items for the benchmark. Content limits may be used to identify content beyond the scope of the targeted benchmark if the content is more appropriately assessed by another benchmark. These statements help to provide validity by ensuring the test items are clearly aligned to the targeted benchmark.

VI. Individual Benchmark Specifications

Individual Benchmark Specifications for Florida Interim Assessment Item Bank Science Items: Grades K–2

This section of the *Specifications* describes how the Grades K–2 science benchmarks for the Florida Interim Assessment Item Bank are assessed. Each grade level includes benchmarks from the four Bodies of Knowledge (Nature of Science, Life Science, Earth and Space Science, and Physical Science). Eighteen Big Ideas thread throughout all the grade levels and build in rigor and depth as students advance.

A. Grade K Item Specifications

Course Number: 5020010

Benchmark HE.K.C.1.5	
Body of Knowledge/Strand	**Health Education Concepts**
Standard	**Health Standard 1: Comprehend concepts related to health promotion and disease prevention to enhance health.**
Benchmark	**HE.K.C.1.5: Recognize there are body parts inside and outside of the body.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will recognize examples of common body parts including the brain, muscles, and skin.
Content Limits	Items may assess other common body parts such as eyes, ears, nose, mouth, heart, lungs, etc. Items may not assess less commonly known body parts such as the spleen, pancreas, liver, kidneys, gall bladder, etc.

Benchmark SC.K.E.5.1	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.K.E.5.1: Explore the Law of Gravity by investigating how objects are pulled toward the ground unless something holds them up.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that all objects will be pulled toward the ground if something does not hold them up; • identify gravity as the force that causes objects to fall when they are not held up; and • make predictions about how objects will be impacted if supports holding them up are removed.
Content Limits	Scenarios illustrating gravity are limited to simplistic actions (e.g., a ball rolling off a table). Items will not • address why certain items fall at a slower rate than others; or • address why some objects float upward rather than fall.

Benchmark SC.K.E.5.2	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.K.E.5.2: Recognize the repeating pattern of day and night.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify activities they do during the day and explain how they are different from those they do at night; • identify details in nature that make day different from night; and • describe how day follows night and night follows day.
Content Limits	Items will use pictures of daytime and nighttime activities and/or characteristics in sequence. Items will not • require students to identify the length of a day or night; or • require students to know how many days there are in a week, month, or year.

Benchmark SC.K.E.5.3	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.K.E.5.3: Recognize that the Sun can only be seen in the daytime.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify the Sun; • describe attributes that define daytime, with the Sun as the primary detail; and • identify how the Sun rises at dawn and sets at dusk.
Content Limits	Items will not require students to describe where the Sun goes at night or why the Sun rises in the east and sets in the west. Items may include pictures of the daytime and/or nighttime sky.

Benchmark SC.K.E.5.4	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.K.E.5.4: Observe that sometimes the Moon can be seen at night and sometimes during the day.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify and describe the Moon; • describe attributes that define nighttime, including the Moon as a primary detail; and • discuss how sometimes the Moon can be seen during the day while the Sun is out.
Content Limits	Items will not require students to identify exactly when or why the Moon appears during the day. Items will use pictures of the Moon in any of its aspects in the nighttime sky and pictures of the fainter Moon in a daytime sky.

Benchmark SC.K.E.5.5	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.K.E.5.5: Observe that things can be big and things can be small as seen from Earth.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • compare the size of an airplane (or another object, such as a hot air balloon) on the ground to one they see in the sky; • explain how the airplane looks smaller in the sky even though it doesn't change in size; • describe the size of objects in space (such as the Sun, Moon, and stars) in relation to Earth; and • explain that big objects (such as the Sun, Moon, and stars) look small when observed from Earth.
Content Limits	Items may include pictures of objects reflecting their actual size as much as possible (for example, an airplane on the ground, the Sun or another star from space) and pictures of how the objects look when standing on Earth. Items will not • require students to explain why big objects can look small as seen from Earth; or • require students to identify specifically how big objects in space (such as the Sun, Moon, and stars) are.

Benchmark SC.K.E.5.6	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.K.E.5.6: Observe that some objects are far away and some are nearby as seen from Earth.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe how objects such as stars are far away as seen from Earth; • describe how objects in our solar system, such as the Sun and Moon, are nearby as seen from Earth; and • compare how objects that are far away differ from those that are nearby as seen from Earth.
Content Limits	Items will not require students to describe exactly how far away the Sun, Moon, planets, or stars are. Items will use pictures of the Sun, Moon, and stars in the full context of the sky.

Benchmark SC.K.L.14.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Organisms**
Benchmark	**SC.K.L.14.1: Recognize the five senses and related body parts.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe seeing, hearing, tasting, feeling (touch), and smelling; • identify eyes, ears, skin, the tongue, and the nose; and • match eyes with seeing, ears with hearing, the tongue with tasting, skin with feeling, and the nose with smelling.
Content Limits	Items will not require students to explain how the processes of the senses work in the body. Items may include pictures of body parts related to the senses, such as eyes, ears, noses, tongues/mouths, and fingers (or hands, toes, or other areas of the skin).

Benchmark SC.K.L.14.2	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Organisms**
Benchmark	**SC.K.L.14.2: Recognize that some books and other media portray animals and plants with characteristics and behaviors they do not have in real life.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify pictures, stories, and videos that portray plants and animals the way they are in real life; • identify pictures, stories, and videos that portray plants and animals in ways that are not true to life (e.g., animals that talk, plants that walk, etc.); • describe a plant or animal as it appears in real life; and • describe a plant or animal with characteristics that would not appear in real life (e.g., it's a strange color, it goes to school).
Content Limits	Items will not require students to identify specific plants or animals. Items will use descriptions or pictures of plants and animals both in real-life situations and pretend situations.

Benchmark SC.K.L.14.3	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Organisms**
Benchmark	**SC.K.L.14.3: Describe plants and animals; describe how they are alike and how they are different in the way they look and in the things they do.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe plants and animals including, but not limited to, their appearances and natural behaviors; • contrast differences between different kinds of plants, different kinds of animals, and plants and animals (for example, appearances, how they move, how they reproduce); and • identify similarities among different kinds of plants and animals (for example, they make flowers, they have fur, they lay eggs).
Content Limits	Items will not require students to identify specific plants or animals. Items may include written descriptions or pictures of plants and animals engaged in natural activities.

Benchmark SC.K.N.1.1	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.K.N.1.1: Collaborate with a partner to collect information.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • find a partner (or partners) or work with a partner (or partners) assigned by the teacher; • decide how or where to look for the information they need to find with a partner's (or partners') help; and • present the information they find with their partner(s) to the teacher.
Content Limits	Items will not require students to make conclusions about the information they collect. Items may require students to use textbooks, library books, pictures, equipment, supplies from the classroom, or things found in the natural environment.

Benchmark SC.K.N.1.2	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.K.N.1.2: Make observations of the natural world and know that they are descriptors collected using the five senses.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe things from the natural world including, but not limited to, animals, plants, the weather and climate, foods, and so on; • use one or more of their five senses (sight, sound, smell, touch, and taste) to list the characteristics of things found in the natural world; and • use all five senses to describe a single object.
Content Limits	Items will not require students to make hypotheses or conclusions about the things they observe. Items may include written descriptions, pictures, or actual natural objects with which to interact and observe.

Benchmark SC.K.N.1.3	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.K.N.1.3: Keep records as appropriate—such as pictorial records—of investigations.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • discuss different ways in which scientists record their observations during investigations, such as notes, reports, graphs, charts, illustrations, photos, audio recordings, and videos; • describe some types of observations scientists make, such as dates and times, measurements, changes to objects, etc.; and • create a pictorial record of observations made during an investigation (for example, drawing a picture or making a chart).
Content Limits	Items may use objects from the natural environment, demonstrations, or descriptions read from a text. Items will not • require students to describe their observations in writing; or • require students to make conclusions based on their observations or investigations.

Benchmark SC.K.N.1.4	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.K.N.1.4: Observe and create a visual representation of an object which includes its major features.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe an object including its major features (for example, its appearance, what it does, or how it works) using as many of the five senses as possible; • create a visual representation of the object (for example, in the form of a drawing, collage, or model) that reflects its major features; and • select a visual representation that matches a description of an object.
Content Limits	Items will not require students to be highly accurate with specific details in the visual representations they create. Items may include photos, illustrations, or actual objects to observe.

Benchmark SC.K.N.1.5	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.K.N.1.5: Recognize that learning can come from careful observation.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • use their observational skills, using as many of the senses as possible, to describe an object that is familiar to them; and • list new things they know after carefully observing the object and hearing the observations of others.
Content Limits	Items will not require students to make conclusions about the objects they observe. Items may include demonstrations, photos, illustrations, or actual objects to observe.

Benchmark SC.K.P.8.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.K.P.8.1: Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), and texture.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • select objects of the same shape (or color, temperature, weight, or texture) and put them together in a group; • identify groups of objects that contain the same sizes, shapes, temperatures, weights, or textures; and • describe which observable properties (shape, color, temperature, weight, or texture) all the objects in a group share.
Content Limits	Items will not require students to measure the properties of objects. Items may use written descriptions, photos, illustrations, or actual objects for students to observe.

Benchmark SC.K.P.9.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 9: Changes in Matter**
Benchmark	**SC.K.P.9.1: Recognize that the shape of materials such as paper and clay can be changed by cutting, tearing, crumpling, smashing, or rolling.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain how, when a person cuts (or tears or crumples) a piece of paper into different shapes, it is still a piece of paper; • demonstrate how smashing a piece of clay (or similar substance) only changes the shape of the material and not the material itself; and • identify different forms of a material as being the same material (for example, matching ripped-up pieces of paper to a full sheet).
Content Limits	Items will not require students to recognize materials in different states of matter, such as solid, liquid, and gas. Items may include written descriptions, photos, illustrations, or actual objects with which to interact and observe.

Benchmark SC.K.P.10.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 10: Forms of Energy**
Benchmark	**SC.K.P.10.1: Observe that things that make sound vibrate.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain how certain instruments (such as guitars, violins, or pianos) make sounds when their strings are moving; • describe how audio equipment, such as speakers, feels when sound is coming through it; and • describe how small sounds (like that of a bell ringing) and big sounds (like thunder) both work through vibration.
Content Limits	Items will not require students to explain how wavelength frequency relates to tone. Items may use pictures or illustrations depicting vibrating objects.

Benchmark SC.K.P.12.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 12: Motion of Objects**
Benchmark	**SC.K.P.12.1: Investigate that things move in different ways, such as fast, slow, etc.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe the speed at which things move, including, but not limited to, fast and slow; • describe the methods by which things move, including, but not limited to, walking, running, rolling, swimming, flying, etc.; and • list ways in which their own bodies move, including, but not limited to, walking, skipping, jumping, hopping, and galloping.
Content Limits	Items will not require students to measure the speed or direction of objects in motion. Items may include photos, illustrations, or demonstrations of wheeled toys moving quickly and slowly; students or teachers moving their own bodies; or class animals moving (crawling, running, hopping).

Benchmark SC.K.P.13.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 13: Forces and Changes in Motion**
Benchmark	**SC.K.P.13.1: Observe that a push or a pull can change the way an object is moving.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade K CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe how pushing a standing object can make it move forward; • describe how pulling a standing object can make it move backward; and • describe how pushing a moving (rolling or sliding) object can make it change direction.
Content Limits	Items will not require students to measure changes in force. Items may include actual objects to observe, or demonstrations, photos, or illustrations of objects being pushed or pulled.

B. Grade 1 Item Specifications

Course Number: 5020020

Benchmark HE.1.C.1.6	
Body of Knowledge/Strand	**Health Education Concepts**
Standard	**Health Standard 1: Comprehend concepts related to health promotion and disease prevention to enhance health.**
Benchmark	**HE.1.C.1.6: Emphasize the correct names of human body parts.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will be able to correctly name common human body parts such as the stomach and intestines.
Content Limits	Items may assess other common body parts such as hands, arms, legs, feet, eyes, ears, nose, mouth, heart, lungs, etc. Items may not assess less commonly known body parts such as the spleen, pancreas, liver, kidneys, gall bladder, etc.

Benchmark SC.1.E.5.1	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.1.E.5.1: Observe and discuss that there are more stars in the sky than anyone can easily count, and that they are not scattered evenly in the sky.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will explain that there are more stars in the sky than can be counted by humans, including scientists. Students will describe a view of the night sky including the vast number of stars and the uneven placement of stars in the sky.
Content Limits	Items may show an illustration of the night sky including stars. Items will not • assess characteristics of stars in the night sky; or • assess the seasonal changes of stars in the night sky.

Benchmark SC.1.E.5.2	
Body of Knowledge/Strand	**Earth and Space**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.1.E.5.2: Explore the Law of Gravity by demonstrating that Earth's gravity pulls any object on or near Earth toward it even though nothing is touching the object.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain the effect of gravity on objects on the surface of Earth and near Earth in outer space; • understand that gravity acts upon objects even if nothing is touching them (e.g., objects in space); and • describe why objects fall to the ground on Earth's surface.
Content Limits	Items will not assess other forces affecting objects on or near Earth's surface (e.g., friction). Items may present a scenario in which a student drops an object.

Benchmark SC.1.E.5.3	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.1.E.5.3: Investigate how magnifiers make things appear bigger and help people see things they could not see without them.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that some tools (e.g., telescopes) aid the human eye; • understand that these tools make objects appear bigger and closer; and • describe what can be seen with these tools that cannot be seen with the eye alone.
Content Limits	Items will not require students to understand specifics regarding the method by which magnifiers make objects appear bigger. Items may require students to examine images of objects or organisms under various levels of magnification.

Benchmark SC.1.E.5.4	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 5: Earth in Space and Time**
Benchmark	**SC.1.E.5.4: Identify the beneficial and harmful properties of the Sun.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will identify and describe beneficial properties of the Sun (e.g., providing warmth, light, and energy for photosynthesis). Students will identify and describe harmful properties of the Sun (e.g., UV rays, eye damage).
Content Limits	Items may include charts comparing positive and negative properties of the Sun.

Benchmark SC.1.E.6.1	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 6: Earth Structures**
Benchmark	**SC.1.E.6.1: Recognize that water, rocks, soil, and living organisms are found on Earth's surface.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe components that appear on Earth's surface, including water, rocks, soil, and living organisms; • understand that these components are exclusive to Earth's surface and are not found in other layers of Earth's crust; and • recognize that both living and nonliving objects are found on Earth's surface.
Content Limits	Items will not assess geologic features of Earth's surface. Items may include a diagram of objects and ask which one could be found on Earth's surface.

Benchmark SC.1.E.6.2	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 6: Earth Structures**
Benchmark	**SC.1.E.6.2: Describe the need for water and how to be safe around water.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that all organisms on Earth need water to live; • recognize that many organisms live in water; and • describe procedures involving water safety. These include, but are not limited to, swimming only when a lifeguard is on duty and wearing appropriate clothing and equipment when participating in water-related activities (e.g., life jackets when boating).
Content Limits	Items will not assess the different types, locations, or quantities of water on Earth. Items will not assess the water cycle.

Benchmark SC.1.E.6.3	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 6: Earth Structures**
Benchmark	**SC.1.E.6.3: Recognize that some things in the world around us happen fast and some happen slowly.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that Earth is constantly changing; • identify examples of fast changes such as Earthquakes and volcanoes; and • identify examples of slow changes such as erosion and the movement of tectonic plates.
Content Limits	Items may include a diagram or illustration demonstrating an effect of an Earth process and ask students whether the change happened slowly or quickly. Items will not • assess the mechanics of Earth processes; or • assess students' ability to identify technical terms of Earth processes.

Benchmark SC.1.L.14.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Things**
Benchmark	**SC.1.L.14.1: Make observations of living things and their environment using the five senses.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • describe ways in which living things and their environments can be observed; • identify living things and their environments using the five senses; and • recognize tools that can aid in these observations in the type of environment they are naturally found.
Content Limits	Items may include a diagram or illustration of a living thing and/or its environment and ask students to identify which senses were used to make the observation.

Benchmark SC.1.L.14.2	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Things**
Benchmark	**SC.1.L.14.2: Identify the major parts of plants, including stem, roots, leaves, and flowers.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that plants have various parts; • identify major parts of plants, including roots, stems, leaves, and flowers; and • locate roots, stems, leaves, and flowers on several types of plants.
Content Limits	Items will not assess the functions of identified parts. Items may include a diagram of a plant that identifies major parts.

Benchmark SC.1.L.14.3	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Things**
Benchmark	**SC.1.L.14.3: Differentiate between living and nonliving things.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that objects on Earth are either living or nonliving; • identify characteristics of living things; • identify characteristics of nonliving things; and • explain the differences between living and nonliving things.
Content Limits	Items will not assess viruses. Items may include an illustration of living and nonliving things. Items may ask students to make a comparison between living and nonliving things.

Benchmark SC.1.L.16.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 16: Heredity and Reproduction**
Benchmark	**SC.1.L.16.1: Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that offspring are related to their parents; • identify similarities between offspring and their parents; and • describe differences in a population of people.
Content Limits	Items may include an illustration of parents and offspring or an illustration of individuals in a population. Items will not • assess asexual reproduction; or • assess details of inheritance.

Benchmark SC.1.L.17.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 17: Interdependence**
Benchmark	**SC.1.L.17.1: Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that all living things have requirements for life; • identify the basic needs of all living things; and • compare the needs of animals with those of plants in order to see the similarities in all living things.
Content Limits	Items will not include details of photosynthesis or respiration.

Benchmark SC.1.N.1.1	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.1.N.1.1: Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that conclusions are drawn in science through investigation; • conduct investigations in groups and work together to form explanations; and • be prompted to ask questions about the natural world and devise inquires to answer these questions.
Content Limits	Items will not assess how to design or conduct an investigation. Items may include scenarios in which a student or scientist has an inquiry or conducts an experiment about the natural world.

Benchmark SC.1.N.1.2	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.1.N.1.2: Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare observations with others.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • use various techniques to make observations; • recognize that the five senses will enable them to make observations about the natural world; • describe objects using physical properties such as number, shape, texture, size, weight, color, and motion; and • share observations in a manner that enables them to compare these observations to delineate similarities and differences.
Content Limits	Items will not assess how to design or conduct an investigation. Items will not assess chemical properties.

Benchmark SC.1.N.1.3	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.1.N.1.3: Keep records as appropriate—such as pictorial and written records—of investigations conducted.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • practice keeping records of investigations; and • use appropriate methods for record keeping (e.g., pictorial, written).
Content Limits	Items may require students to fill in appropriate information on a simple table or chart.

Benchmark SC.1.N.1.4	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.1.N.1.4: Ask "how do you know?" in appropriate situations.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that discoveries are made by asking questions when situations are unknown or not understood; • openly ask questions to discover answers; and • determine appropriate situations in which to ask questions.
Content Limits	N/A

Benchmark SC.1.P.8.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.1.P.8.1: Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that objects have observable physical properties; • demonstrate the ability to classify and sort objects by observable physical properties such as size, shape, color, temperature, weight, texture, and the ability to sink or float; and • recognize that some objects have similar properties.
Content Limits	Items will not assess chemical properties. Items may use an illustration of observable physical properties. Items may require students to fill in a simple chart or table to classify objects.

Benchmark SC.1.P.12.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 12: Motion of Objects**
Benchmark	**SC.1.P.12.1: Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe that objects can move in different ways; • describe the various ways in which objects can move (e.g., straight line, zigzag, back-and-forth, round-and-round, fast, slow); and • demonstrate different types of motion using everyday objects.
Content Limits	Items will not assess speed, velocity, or distance.

Benchmark SC.1.P.13.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 13: Forces and Changes in Motion**
Benchmark	**SC.1.P.13.1: Demonstrate that the way to change the motion of an object is by applying a push or a pull.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 1 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe that motion can be altered by various methods; • demonstrate the methods of changing an object's motion (push or pull); and • recognize that a force (push or pull) must be applied to change an object's motion.
Content Limits	Items will not assess the definition of force. Items may use an illustration of a student pushing or pulling an object.

C. Grade 2 Item Specifications

Course Number: 5020030

Benchmark HE.2.B.3.2	
Body of Knowledge/Strand	**Health Education Responsible Behavior**
Standard	**Health Standard 3: Demonstrate the ability to use decision-making skills to enhance health.**
Benchmark	**HE.2.B.3.2: Name healthy options to health-related issues or problems.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will be able to identify healthy options in • food choices; and • personal safety. Students will recognize the benefits of • peer cooperation; • communication; and • safety equipment.
Content Limits	Items may not include examples that may be beyond second-grade level, including unfamiliar/obscure food choices, health issues, safety equipment and safety/health issues.

Benchmark HE.2.C.1.6	
Body of Knowledge/Strand	**Health Education Concepts**
Standard	**Health Standard 1: Comprehend concepts related to health promotion and disease prevention to enhance health.**
Benchmark	**HE.2.C.1.6: Recognize the locations and functions of major human organs.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify the location of major organs such as the heart, lungs and brain; and • have a basic understanding of the function of major human organs. For example, we need the heart to pump blood, lungs to breathe air, and muscles to move the body.
Content Limits	Items may not include examples that may be beyond grade level such as the liver, kidneys, spleen, gall bladder, and pancreas.

Benchmark SC.2.E.6.1	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 6: Earth Structures**
Benchmark	**SC.2.E.6.1: Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that Earth is made of rocks; • draw pictures of various rock samples and label the drawings by size into groupings such as sand, gravel, or boulders; and • classify various rocks into categories using their own criteria such as rock size, shape, color, and texture.
Content Limits	Items should not include the details of the classification of rocks. Item may include a chart with varying sizes of rocks such as sand, gravel, or boulders that students can match to their rock samples.

Benchmark SC.2.E.6.2	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 6: Earth Structures**
Benchmark	**SC.2.E.6.2: Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that the process of rock weathering helps create soil; • explain that the decaying remains of plants and animals contribute another important component of the soil; and • explain that the decay process is attributed to organisms called decomposers.
Content Limits	Items will not discuss the different types of soil that have unique components.

Benchmark SC.2.E.6.3	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 6: Earth Structures**
Benchmark	**SC.2.E.6.3: Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • distinguish among three types of soil (clay, sand, and silt) based on their descriptions of color, texture, and size of particles; • test soil samples to compare their ability to hold water; and • identify soil types that are most able to support plant growth.
Content Limits	Items will not assess the origin and erosion of soils. Items may include a chart containing the types and descriptions of soil.

Benchmark SC.2.E.7.1	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 7: Earth Systems and Patterns**
Benchmark	**SC.2.E.7.1: Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • keep daily records of temperature and precipitation and plot them on a graph; and • sequence pictures of the seasons both in order and from coldest to hottest.
Content Limits	Items will not explore the nature of climate. Items may include pictures of the seasons sequenced both in order and from coldest to hottest.

Benchmark SC.2.E.7.2	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 7: Earth Systems and Patterns**
Benchmark	**SC.2.E.7.2: Investigate, by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that heat from the sun causes an increase in temperature on a thermometer; • explain that more direct exposure to the sun causes a greater increase in temperature; and • identify patterns of change as the sun directly and indirectly heats model systems that represent land, air, and water.
Content Limits	Items will not require students to track weather patterns. Items may include illustrations of different types of weather (cloudy, sunny, etc.), that the students will put in order from hottest to coldest.

Benchmark SC.2.E.7.3	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 7: Earth Systems and Patterns**
Benchmark	**SC.2.E.7.3: Investigate, observe, and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe that air and water are in constant motion as water transforms from liquid to water vapor; and • observe that clouds form when water vapor in the air meets dust particles.
Content Limits	Items will not discuss condensation.

Benchmark SC.2.E.7.4	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 7: Earth Systems and Patterns**
Benchmark	**SC.2.E.7.4: Investigate that air is all around us and that moving air is wind.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that air is all around us even though it can't be seen; • observe that air takes up space and has weight; • recognize that air is in constant motion and that moving air is wind; and • explain that wind can be a source of great power and can cause storms or be harnessed for human use.
Content Limits	Items will not discuss the chemical composition of the air. Items can measure wind direction, but items will not assess or measure wind speed.

Benchmark SC.2.E.7.5	
Body of Knowledge/Strand	**Earth and Space Science**
Standard	**Big Idea 7: Earth Systems and Patterns**
Benchmark	**SC.2.E.7.5: State the importance of preparing for severe weather, lightning, and other weather-related events.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify severe conditions (such as lightning, floods, and fires) and focus on weather conditions that are specific to their area, such as tornadoes or hurricanes; • make a list of items that would be good to have in an emergency; and • put together a classroom emergency kit including items from their list, such as water, food, bandages, flashlights, etc.
Content Limits	Items will emphasize preparing for severe weather events and will not discuss all types of storms. Items should include a list of objects students can choose from that should or should not be included in an emergency kit.

Benchmark SC.2.L.14.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 14: Organization and Development of Living Organisms**
Benchmark	**SC.2.L.14.1: Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will explain that parts of the body are important in helping a human function, stay alive, and grow. On a drawing, students will identify the brain, heart, lungs, stomach, muscles, and skeleton and choose from a list of functions the appropriate match for each part.
Content Limits	Items may include a drawing of the body to be labeled with the names of body parts (brain, heart, lungs, stomach, muscles, and skeleton) and may also include a list of functions to be matched to those parts.

Benchmark SC.2.L.16.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 16: Heredity and Reproduction**
Benchmark	**SC.2.L.16.1: Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe that all living things, including plants and animals, go through a life cycle; • describe the major stages in the life cycle of a bean plant, including the seed stage; germination; the development of roots, stems, leaves, and flowers; and reproduction; • describe the stages in the life cycle of a butterfly, from an egg becoming a caterpillar then entering the pupa (chrysalis) stage, to an adult emerging as a butterfly; and • make general observations on the differences between the life cycle of plants and animals.
Content Limits	Items may include a diagram of the life cycle of the bean, the butterfly, or other organisms

Benchmark SC.2.L.17.1	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 17: Interdependence**
Benchmark	**SC.2.L.17.1: Compare and contrast the basic needs that all living things, including humans, need for survival.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify the basic needs of plants including air, water nutrients, and light and explain why plants are considered living things; • identify the basic needs of animals including air, water, food, and shelter; • compare and contrast the basic needs of animals and plants; and • explain how animals and plants depend on each other and the environment to meet their basic needs.
Content Limits	Items will not focus on the anatomy or physiology of the animal or plant being studied. Any effort to identify parts of an animal or plant will be to explain how those parts meet its ability to stay alive. Items may include a diagram of a plant and animal with a list of things that may or may not be necessary for survival. From this list, students can choose which things are necessary for a plant to survive and which are necessary for an animal to survive.

Benchmark SC.2.L.17.2	
Body of Knowledge/Strand	**Life Science**
Standard	**Big Idea 17: Interdependence**
Benchmark	**SC.2.L.17.2: Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • identify the basic needs of organisms, such as water, space, food, shelter, suitable temperature, and sunlight; • read about and compare various environments throughout the world (such as deserts, rainforests, grasslands, etc.) and name several animals that live in each environment; • observe and discuss animals in different local habitats, such as life in a sample from a pond viewed through a microscope, a fish in its bowl, a cricket in a shoe box, etc.; • explain how the habitat they studied had the necessary components to meet the needs of the animal in that habitat; and • explain how an animal from a specific habitat has characteristics that match the specific physical conditions of that environment.
Content Limits	Items should not include complex vocabulary such as *biomes*, *ecosystems*, or *niche*. Items may include pictures of various habitats to be matched with animals from that habitat.

Benchmark SC.2.N.1.1	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.2.N.1.1: Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will create questions about something natural or about nature in the local environment. In teams, students will read texts, collect data by making observations with their five senses, and use appropriate scientific tools (such as a beaker or thermometer) to help answer questions. Students will make inferences and explanations based on observations and collected data.
Content Limits	Items may include a table used to match the five senses to scientific observations made by those senses. (For example, matching *ear* with an experiment related to sound.)

Benchmark SC.2.N.1.2	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.2.N.1.2: Compare the observations made by different groups using the same tools.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • make observations while conducting an experiment in groups using the same scientific tool. For example, students could measure the lengths of different objects using a ruler and express the results in centimeters. • compare answers from the different groups and explain why there are variations in measurement and why results from groups are not always the same.
Content Limits	Items may include a chart of observations or measurements made by several students within the same experiment. Students will circle only the reasonable answers and exclude answers that would not be considered within the scope of normal variation or error. Items may not • use the term *error* to express variations in measurement; or • use the term *anomaly*.

Benchmark SC.2.N.1.3	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.2.N.1.3: Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will ask, "How do you know?" when they hear another student give an explanation for something observed in a scientific activity or investigation. When asked, "How do you know?" students will "argue" the point and validate the explanation by giving details of the observations that were used in the formation of the explanation.
Content Limits	Items will not include having students explain conclusions about something they have not observed. Items may include a list of possible explanations for a particular inference or conclusion where students have to pick the most probable explanation based on the data given in a particular investigation.

Benchmark SC.2.N.1.4	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.2.N.1.4: Explain how particular scientific investigations should yield similar conclusions when repeated.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will explain that conducting similar scientific investigations based on the same concept should result in similar conclusions when repeated.
Content Limits	Students will not be expected to form conclusions but understand that scientists repeat experiments and compare the results with other experiments to see whether the results/conclusions are similar.

Benchmark SC.2.N.1.5	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.2.N.1.5: Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • read about and explain that observations are based on the five senses, which are seeing, hearing, feeling, smelling, and tasting; • explain that an inference is what a person thinks; • give an example of an observation and an example of an inference and compare the two; and • explain why, although both an observation and an inference could be wrong, it is more likely that an inference would be wrong than an observation.
Content Limits	Items will not discuss the idea that many things in science cannot be proven but must be inferred. Items may include diagrams of observations and inferences that can be labeled as one or the other.

Benchmark SC.2.N.1.6	
Body of Knowledge/Strand	**Nature of Science**
Standard	**Big Idea 1: The Practice of Science**
Benchmark	**SC.2.N.1.6: Explain how scientists alone or in groups are always investigating new ways to solve problems.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • read about and recognize that scientists can work alone or in groups to solve problems; • explain that one of a scientist's jobs is to solve problems by first asking questions; • explain that scientists want to find simpler, faster, and more efficient ways to solve problems that will yield reproducible results and trustworthy answers; and • recognize that a reason scientists look for new ways to solve problems may be because they couldn't solve the problem they set out to answer.
Content Limits	Items will not discuss details of hypotheses and theories.

Benchmark SC.2.P.8.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.2.P.8.1: Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that objects can be identified by their physical (observable) properties (characteristics); • relate that objects are also known as matter, and matter is anything that has mass (weight) and takes up space; • identify some physical (observable) properties such as size, shape, and color; and • record observations and measurements of several objects (including the size, shape, color, temperature, weight, and texture) and predict whether an object will sink or float in water and whether it is attracted (pulled) or repulsed (pushed away) by magnets.
Content Limits	Items should not discuss chemical properties. Items may include a table in which objects are grouped together by a single physical (observable) attribute such as size or color. The term *weight* rather than *mass* may be used at this grade level even though it is not technically correct. Items should use • the phrase *things you can observe* rather than *physical properties* for this age group; and • the terms *pushed* or *pulled* instead of *repulsed* or *attracted*.

Benchmark SC.2.P.8.2	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.2.P.8.2: Identify objects and materials as solid, liquid, or gas.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will explain that the reason scientists classify things into groups is to identify common or similar properties (characteristics). Students will sort a variety of objects and materials into three categories (solid, liquid, and gas) based on similar physical characteristics (such as shape, flow, and ability to be compressed).
Content Limits	The scientific definitions of solid, liquid, and gas will not be used as they are a part of a different standard. Items may include a group of objects to be classified as solid, liquid, or gas. The words *state* or *states of matter* should not be used; instead, use *groups* or *forms*.

Benchmark SC.2.P.8.3	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.2.P.8.3: Recognize that solids have a definite shape, and that liquids and gases take the shape of their container.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that a physical characteristic of a solid is that it has a definite shape; • explain that a solid's shape can be changed only if a force like hammering, slicing, or twisting is applied to it; • explain that solids can be hard, soft, bouncy, or stretchy; • pour a liquid into containers of different shapes and observe that a liquid does not have its own shape; • explain that liquids can flow from one place to another; and • relate that a gas does not have a definite shape but takes the shape of its container. For example, the air in a balloon can be compressed and reshaped.
Content Limits	Items will not include changes in the states of matter. Items may include a chart with objects or materials to be identified as *keeps its shape* or *takes on the shape of the container*. The words *state* or *states of matter* should not be used; instead, use *groups* or *forms*.

Benchmark SC.2.P.8.4	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.2.P.8.4: Observe and describe water in its solid, liquid, and gaseous states.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe ice cubes melting and explain that changes in temperature can cause a substance to change states; • recognize that even though a substance has changed states, it still remains the same substance; • observe and describe that when water is in its solid form, it is ice; • observe and describe that when water is found as a gas, it is water vapor (like the steam coming from boiling water).
Content Limits	Items will be restricted to the three states of water. Items may include a chart in which students label the words *ice*, *liquid water*, and *water vapor* with the words *solid*, *liquid*, or *gas*.

Benchmark SC.2.P.8.5	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.2.P.8.5: Measure and compare temperatures taken every day at the same time.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • recognize that temperature is a physical property or characteristic that can be used to describe substances; • measure temperatures of different substances every day at the same time, e.g., sand (solid), water (liquid), and air (gas); and • compare the temperatures.
Content Limits	Items will not discuss weather.

Benchmark SC.2.P.8.6	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 8: Properties of Matter**
Benchmark	**SC.2.P.8.6: Measure and compare the volume of liquids using containers of various shapes and sizes.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that the amount of space a substance takes up is called volume; • note that volume is a physical characteristic of substances; • explain that a liquid takes on the shape of its container; • compare the volume of liquids using containers of various shapes and sizes; and • note that even though the shape of a liquid changes, the volume remains the same.
Content Limits	The various units of volume in the English and metric systems will not be directly assessed.

Benchmark SC.2.P.9.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 9: Changes in Matter**
Benchmark	**SC.2.P.9.1: Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe and explain that matter can be changed physically (crushed, bent, broken, melted, frozen, etc.) while remaining the same substance; • explain that matter can be changed into a new substance when it goes through a chemical change (burning, rusting) ; and • observe and explain that when a change (alteration) is made, different materials respond in different ways. (For example, cooking an egg changes it from a liquid to a solid, but warming water does not change its state unless it is heated to evaporation.)
Content Limits	Items will not discuss the chemical reactions involved in rusting or burning. Items may include pictures of substances undergoing a physical or chemical change, that students will label as *physical* or *chemical* change.

Benchmark SC.2.P.10.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 10: Forms of Energy**
Benchmark	**SC.2.P.10.1: Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • read about and identify some sources of energy humans can use (such as electricity, wind, water, and sun) to cook food, cool or warm homes, and power cars; • identify ways people use electricity in their lives; and • identify ways people use the energy from the sun, wind, or water.
Content Limits	Items may include photos of objects to be matched with the source of energy used by the object. Items will not • discuss whether sources or forms of energy are renewable or nonrenewable; or • include the transmission of various forms of energy.

Benchmark SC.2.P.13.1	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 13: Forces and Changes in Motion**
Benchmark	**SC.2.P.13.1: Investigate the effect of applying various pushes and pulls on different objects.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • observe that pushing or pulling on an object causes it to move; • observe that pushing or pulling on an object changes the directional movement of that object, which uses energy; and • explain that pushing or pulling on an object with more force can cause the object to move faster or farther.
Content Limits	Items will not discuss the effect of friction on pushing and pulling objects. Items may include a list of examples that students label with *pushing* or *pulling*.

Benchmark SC.2.P.13.2	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 13: Forces and Changes in Motion**
Benchmark	**SC.2.P.13.2: Demonstrate that magnets can be used to make some things move without touching them.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • use magnets and demonstrate that magnets can be used to move some things without touching them; • observe and explain that the amount of movement a magnet can cause on a magnetic object is affected by the strength of the magnet and its distance from the object; • explain that magnets can cause change in motion with or without touching some objects; and • recognize that the change in motion (pushing or pulling on the object) is dependent on the direction the magnet is facing.
Content Limits	Items will not include the uses of magnets. Items may include a chart of items that students will label as magnetic or nonmagnetic based on whether the magnet caused an object to move.

Benchmark SC.2.P.13.3	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 13: Forces and Changes in Motion**
Benchmark	**SC.2.P.13.3: Recognize that objects are pulled toward the ground unless something holds them up.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • demonstrate that an object will fall to the ground when dropped; • explain that when something is falling it is actually being pulled by Earth with a force called gravity; • relate that the gravity of Earth is strong and pulls objects without touching them; and • observe falling objects (feathers, papers, balls, keys) and identify things that either slow down the pull of Earth or prevent the objects from reaching the ground altogether (e.g., a helium-filled balloon).
Content Limits	Items may include pictures that students can identify as *pulled to Earth quickly*, *pulled to Earth slowly*, or *being held up*. Items may use the word *weight* instead of *mass*. Even though *weight* is not technically correct, it is a better word choice for this age group. Items will not • discuss the gravitational pull of other planets or how Earth's gravity affects other planets; or • discuss scientists who made discoveries in this field, such as Newton or Einstein.

Benchmark SC.2.P.13.4	
Body of Knowledge/Strand	**Physical Science**
Standard	**Big Idea 13: Forces and Changes in Motion**
Benchmark	**SC.2.P.13.4: Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.**
Common Core State Standard Connections	Indicate appropriate alignments to the Grade 2 CCSS Mathematics and/or Literacy Standards for Science whenever applicable. (See Appendix B.)
Benchmark Clarifications	Students will • explain that force is a push or pull on an object that causes it to stop, change speed, or change direction; • demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object; and • observe and explain that the more massive the object being pulled or pushed, the more force it takes to change its motion.
Content Limits	Items will not discuss the concepts of kinetic or potential energy. Items may include an animation of an object being given a soft or hard pull or push. Students would then indicate whether the object would move to a closer or farther position.

Appendix A: Sample Items

Sample Item 1

Grade/Course	Item Type	DOK	NGSSS Benchmark	CCSS Benchmark	Point Value
K/Science	SR	1	SC.K.E.5.4: Observe that sometimes the Moon can be seen at night and sometimes during the day.	N/A	1

Sometimes people can see the Moon in the sky. When can the Moon be seen in the sky?

A. only during the day

B. only during the night

C. during the day and the night*

Correct Answer: C

Rationales:

A	Incorrect. Some students may think that objects that appear large in the sky, such as the Sun and the Moon, can be seen only during the day.
B	Incorrect. Some students may associate seeing the Moon only with the night. The Moon is typically seen more during the night but can sometimes be seen during the day.
C	Correct.

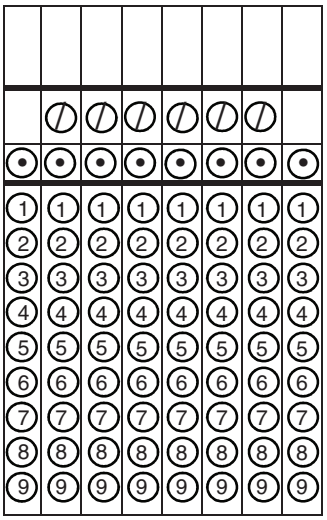
Sample Item 2

Grade/Course	Item Type	DOK	NGSSS Benchmark	CCSS Benchmark	Point Value
2/Science	GR	2	SC.2.P.8.5: Measure and compare temperatures taken every day at the same time.	N/A	1

This chart shows the air temperature measured inside a classroom on five different days.

Monday (°F)	Tuesday (°F)	Wednesday (°F)	Thursday (°F)	Friday (°F)
72	**85**	**80**	**76**	**78**

How many days was the temperature warmer than 75 degrees Fahrenheit?



Correct Answer: 4

Rationales:

Correct Answer	All of the days except Monday had temperatures warmer than 75 degrees.

Sample Item 3

Grade/Course	Item Type	DOK	NGSSS Benchmark	CCSS Benchmark	Point Value
1/Science	CR	2	SC.1.L.14.3: Differentiate between living and nonliving things.	LACC.1.W.3.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	2

Living things are different from nonliving things. Describe two ways that living things are different from nonliving things.

Scoring Rubric and Exemplar

Rubric	
2	A score of two indicates that the student has demonstrated a thorough understanding of the scientific concepts and/or procedures embodied in the task. The student has completed the task correctly, in a scientifically sound manner. When required, student explanations and/or interpretations are clear and complete. The response may contain minor flaws that do not detract from the demonstration of a thorough understanding.
1	A score of one indicates that the student has provided a response that is only partially correct. For example, the student may arrive at an acceptable conclusion or provide an adequate interpretation but may demonstrate some misunderstanding of the underlying scientific concepts and/or procedures. Conversely, a student may arrive at an unacceptable conclusion or provide a faulty interpretation but could have applied appropriate and scientifically sound concepts and/or procedures.
0	A score of zero indicates that the student has not provided a response or has provided a response that does not demonstrate an understanding of the scientific concepts and/or procedures embodied in the task. The student's explanation may be uninterpretable, lack sufficient information to determine the student's understanding, or contain clear misunderstandings of the underlying scientific concepts and/or procedures, or it may be incorrect.

Exemplar	
2	A complete student response should correctly describe two ways that living things are different from nonliving things including any two of the following: Living things use energy, need food, need water, breathe, and reproduce. OR Nonliving things do not need food, water, or energy, and they do not breathe or reproduce.

Sample Item 4

Grade/Course	Item Type	DOK	NGSSS Benchmark	CCSS Benchmark	Point Value
2/Science	ER	3	SC.2.E.7.1: Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.	LACC.2.W.3.8: Recall information from experiences or gather information from provided sources to answer a question.	4

The weather in Florida changes each season of the year. Describe two ways the weather changes from spring to summer and two ways the weather changes from autumn to winter.

Scoring Rubric and Exemplar

Rubric	
4	A score of four indicates that the student has demonstrated a thorough understanding of the scientific concepts and/or procedures embodied in the task. The student has completed the task correctly, used scientifically sound procedures, and provided clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from a demonstration of a thorough understanding.
3	A score of three indicates that the student has demonstrated an understanding of the scientific concepts and/or procedures embodied in the task. The student's response to the task is essentially correct, but the scientific procedures, explanations, and/or interpretations provided are not thorough. The response may contain minor flaws that reflect inattentiveness or indicate some misunderstanding of the underlying scientific concepts and/or procedures.
2	A score of two indicates that the student has demonstrated only a partial understanding of the scientific concepts and/or procedures embodied in the task. Although the student may have arrived at an acceptable conclusion or provided an adequate interpretation of the task, the student's work lacks an essential understanding of the underlying scientific concepts and/or procedures. The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures/processes, or faulty interpretations of results.
1	A score of one indicates that the student has demonstrated a very limited understanding of the scientific concepts and/or procedures embodied in the task. The student's response is incomplete and exhibits many flaws. Although the student's response has addressed some of the conditions of the task, the student has reached an inadequate conclusion and/or provided reasoning that is faulty or incomplete. The response exhibits many flaws or may be incomplete.
0	A score of zero indicates that the student has not provided a response or has provided a response that does not demonstrate an understanding of the scientific concepts and/or procedures embodied in the task. The student's explanation may be uninterpretable, lack sufficient information to determine the student's understanding, or contain clear misunderstandings of the underlying scientific concepts and/or procedures, or it may be incorrect.

Exemplar	
4	**A full-credit student response would correctly provide all four key points of information describing two ways that the weather changes from spring to summer in Florida:** temperature becomes warmer/hotter, there is more sunshine, there is less rain/wind/storms/clouds, etc. Freezing temperatures, hail/frost is less likely; **AND two ways that the weather changes from autumn to winter in Florida:** temperatures get cooler/colder, there is less sunshine, there is more rain/wind/storms/clouds, etc. There is a greater chance of freezing temperatures and frost/hail.

Sample Item 5

Grade/Course	Item Type	DOK	NGSSS Benchmark	CCSS Benchmark	Point Value
2/Science	ESR	3	SC.2.L.17.2: Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.	LACC.2.W.3.8: Recall information from experiences or gather information from provided sources to answer a question.	6

Jungles are warm, wet places with many different kinds of trees. Some jungle trees grow to be very tall with big leaves and long roots and branches.

Deserts are dry places that can be very hot. Deserts have small bushes with tiny leaves and cacti with thin, sharp needles.

Explain why large trees live in jungles and small bushes and cacti live in deserts.

Scoring Rubric and Exemplar

	Rubric
6	Complete and correct response is made to all parts of the prompt. Appropriate scientific terminology is used. There are no major conceptual errors, though there may be nondetracting minor errors. In-depth understanding of the scientific concepts applicable to the prompt is demonstrated. Thorough understanding of the connection between the scientific concepts and the real-life application is demonstrated.
5	Complete and correct response is made to all parts of the prompt. Appropriate scientific terminology is used correctly. There are no major conceptual errors, though there may be minor conceptual errors. Understanding of the scientific concepts applicable to the prompt is demonstrated. Connections are made between the scientific concepts and real-life application.
4	Complete and correct response is made to all parts of the prompt. There are minor errors in the use of scientific terminology. There are minor conceptual errors or omissions. The response may attempt connections between the scientific concepts and real-life application.
3	Response to two or more parts of the prompt is attempted. There is limited use of scientific terminology. Response contains some major conceptual errors or omissions. Response shows limited understanding.
2	Response to one or more parts of the prompt is attempted. The use of scientific terminology may be missing. Response contains many major conceptual errors and omissions. Response shows minimal understanding.
1	Little attempt to answer the prompt is evident. Scientific terminology is missing. Response contains many major conceptual errors and omissions. Explanation shows no understanding.
0	Response addresses an entirely different prompt or is completely unintelligible.

Exemplar	
6	**A full-credit student response should contain correct points of information that are presented in a logical flow of ideas that is similar to the following:** Trees need a lot of rain to grow. It takes a lot of water to grow long roots, branches, and leaves. Jungles have a lot of rain, so the trees can grow big there. Deserts do not have much rain, so big trees cannot live in the desert. Small bushes and cacti do not need much rain because they have smaller leaves and stems. That makes the desert a good place for them to live. The bushes and cacti would get too much water if they lived in the jungle.

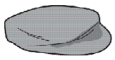
Sample Item 6

Grade/Course	Item Type	DOK	NGSSS Benchmark	CCSS Benchmark	Point Value
K/Science	PT	2	SC.K.N.1.2: Make observations of the natural world and know that they are descriptors collected using the five senses.		3

We use the five senses of sight, touch, smell, hearing, and taste every day when we explore the world around us. The five senses also help us learn about science.

Student Instructions:

Study the three rocks labeled Rock 1, Rock 2, and Rock 3 on the table in front of you. Use one or more of your senses (not including taste) to compare the three rocks. Write or say a different word to describe each rock.

Rock 1	Rock 2	Rock 3
		

Teacher Instructions:

The following performance task will require students to use up to four senses to make observations and to compare objects. Show the students three rocks with distinctly different features (e.g., texture, color, size, mass, hardness). Put a label on each of the three different rocks: Rock 1, Rock 2, and Rock 3. Ask the students to describe each of the rocks based on observations using one to four senses (excluding taste).

Rubric and Exemplar	
3	A full-credit student response would correctly provide all three key points of information comparing characteristics of the three rocks provided: Rock 1 is smooth. OR Rock 1 is black/dark. Rock 2 is white. OR Rock 2 is the biggest. Rock 3 is rough. OR Rock 3 has many holes.

Appendix B: Common Core State Standard Connections

A. Grade K Reading Standards for Literacy in Science and Technical Subjects

LACC.K.RI.1.1	With prompting and support, ask and answer questions about key details in a text.
LACC.K.RI.2.4	With prompting and support, ask and answer questions about unknown words in a text.
LACC.K.SL.1.1	Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
LACC.K.RI.4.10	Actively engage in group reading activities with purpose and understanding.

B. Grade K Writing Standards for Literacy in Science and Technical Subjects

LACC.K.W.3.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

C. Grade K Mathematics Standards in Science and Technical Subjects

MACC.K.MD.1.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*
MACC.K.MD.2.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

D. Grade 1 Reading Standards for Literacy in Science and Technical Subjects

LACC.1.RI.1.1	Ask and answer questions about key details in a text.
LACC.1.RI.2.4	Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
LACC.1.RI.4.10	With prompting and support, read informational texts appropriately complex for grade 1.
LACC.1.SL.1.1	Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.

E. Grade 1 Writing Standards for Literacy in Science and Technical Subjects

LACC.1.W.3.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

F. Grade 1 Mathematics Standards in Science and Technical Subjects

MACC.1.MD.1.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*
MACC.1.MD.3.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

G. Grade 2 Reading Standards for Literacy in Science and Technical Subjects

LACC.2.RI.1.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
LACC.2.RI.2.4	Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*.
LACC.2.RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
LACC.2.SL.1.1	Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.

H. Grade 2 Writing Standards for Literacy in Science and Technical Subjects

LACC.2.W.3.7	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
LACC.2.W.3.8	Recall information from experiences or gather information from provided sources to answer a question.

I. Grade 2 Mathematics Standards in Science and Technical Subjects

MACC.2.MD.4.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
MACC.2.MD.4.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.