



**Solicitation Information  
October 18, 2016**

**RFP #7551067**

**TITLE: Rhode Island Science Alternate Assessment**

**SUBMISSION DEADLINE: November 16, 2016 at 2:00 PM (ET)**

<b>PRE-BID/ PROPOSAL CONFERENCE: No</b>
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Questions concerning this solicitation must be received by the Division of Purchases at <a href="mailto:gail.walsh@purchasing.ri.gov">gail.walsh@purchasing.ri.gov</a> no later than <b>Monday, October 31, 2016 at 5:00 PM (ET)</b> . Questions should be submitted in a <i>Microsoft Word attachment</i> . Please reference the RFP# on all correspondence. Questions received, if any, will be posted on the Internet as an addendum to this solicitation. It is the responsibility of all interested parties to download this information.
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<b>SURETY REQUIRED: No</b>
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GAIL WALSH  
CHIEF BUYER  
Division of Purchases  
RI Department of Administration

Vendors must register on line at the State Purchasing Website at [www.purchasing.ri.gov](http://www.purchasing.ri.gov)

**NOTE TO VENDORS:**

Offers received without the entire completed three-page R.I.V.I.P. Generated Bidder Certification Form attached may result in disqualification.

**THIS PAGE IS NOT A BIDDER CERTIFICATION FORM**

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The Rhode Island Department of Administration, Division of Purchases, on behalf of the Rhode Island Department of Education (RIDE) is requesting Proposals from qualified vendors to provide a state alternate assessment in science for grades 5, 8, and 11, in accordance with the terms of this solicitation and the State's General Conditions of Purchase (available at: [www.purchasing.ri.gov](http://www.purchasing.ri.gov)).

This is a Request for Proposals, not an Invitation for Bid. Responses will be evaluated on the basis of the relative merits of the proposal, in addition to price; there will be no public opening and reading of responses received by the Division of Purchases pursuant to this Request, other than to name those offerors who have submitted proposals.

### **Instructions and Notifications to Bidders:**

1. Potential offerors are advised to review all sections of this solicitation carefully and to follow instructions completely, as failure to make a complete submission as described elsewhere herein may result in rejection of the proposal.
2. Alternative approaches and/or methodologies to accomplish the desired or intended results of this procurement are solicited. However, proposals which depart from or materially alter the terms, requirements, or scope of work defined by this Request will be rejected as being non-responsive.
3. All costs associated with developing or submitting a proposal in response to this Request, or to provide oral or written clarification of its content, shall be borne by the offeror. The State assumes no responsibility for these costs.
4. Proposals are considered to be irrevocable for a period of not less than sixty (60) days following the opening date, and may not be withdrawn, except with the express written permission of the State Purchasing Agent.
5. All pricing submitted will be considered to be firm and fixed unless otherwise indicated herein.
6. Proposals misdirected to other State locations or which are otherwise not present in the Division of Purchases at the time of opening for any cause will be determined to be late and will not be considered. PROPOSALS EMAILED OR FAXED TO THE DIVISION OF PURCHASES WILL NOT BE CONSIDERED. The "Official" time clock is in the reception area of the Division of Purchases.
7. It is intended that an award pursuant to this Request for Proposals will be made to prime Contractor(s) who will assume responsibility for all aspects of the work. Joint ventures shall be considered, so long as the Contractor's duties and responsibilities are clearly articulated in such form as acceptable to the State. Subcontractors are permitted, provided their use is clearly indicated in the offeror's proposal and the subcontractor(s) to be used are identified in the proposal.
8. All proposals should include the vendor's FEIN or Social Security number as evidenced by a W9, downloadable from the Division's website at [www.purchasing.ri.gov](http://www.purchasing.ri.gov).

9. The purchase of services under an award made pursuant to this RFP will be contingent on the availability of funds.
10. In accordance with Title 7, Chapter 1.2 of the General Laws of Rhode Island, no foreign corporation shall have the right to transact business in the state until it shall have procured a Certificate of Authority to do so from the Rhode Island Secretary of State (401-222-3040). *This will be a requirement only of the successful bidder (s).*
11. Offerors are advised that all materials submitted to the State of Rhode Island for consideration in response to this Request for Proposals will be considered to be public records, as defined in Title 38 Chapter 2 of the Rhode Island General Laws, without exception, and will be released for inspection immediately upon request, once an award has been made.
12. Also, Submitters should be aware of the State's MBE requirements, which addresses the State's goal of ten per cent (10%) participation by MBE's in all State procurements. For further information, contact the State MBE Administrator at (401) 574-8670 or [Dorinda.keene@doa.ri.gov](mailto:Dorinda.keene@doa.ri.gov). Visit the website <http://www.mbe.ri.gov>.
13. Interested parties are instructed to peruse the Division of Purchases web site on a regular basis, as additional information relating to this solicitation may be released in the form of an addendum to this RFP. It is the responsibility of all potential offerors to monitor the website and be familiar with any changes issued as part of an addendum.
14. Equal Employment Opportunity (RIGL 28-5.1)  
§ 28-5.1-1 Declaration of policy. – (a) Equal opportunity and affirmative action toward its achievement is the policy of all units of Rhode Island state government, including all public and quasi-public agencies, commissions, boards and authorities, and in the classified, unclassified, and non-classified services of state employment. This policy applies in all areas where the state dollar is spent, in employment, public service, grants and financial assistance, and in state licensing and regulation. For further information, contact the Rhode Island Equal Employment Opportunity Office, at 222-3090 or via email [raymond.lambert@doa.ri.gov](mailto:raymond.lambert@doa.ri.gov).
15. RIGL 37-13-3.1 State public works contract apprenticeship requirements. \* (a)  
Notwithstanding any laws to the contrary, all general contractors and subcontractors who perform work on any public works contract awarded by the state after passage of this act and valued at one million dollars (\$1,000,000) or more shall employ apprentices required for the performance of the awarded contract. The number of apprentices shall comply with the apprentice to journeyman ratio for each trade approved by the apprenticeship council of the department of labor and training.

## **Part I: Overview of the Rhode Island Science Alternate Assessment**

### **Purpose**

The Rhode Island Department of Elementary and Secondary Education (RIDE) is requesting proposals related to the development and implementation of the Rhode Island Alternate Assessment Science assessment program (RIAA Science). In accordance with the assessment requirements of the federal Every Student Succeeds Act (ESSA), the purpose of RIAA Science is to measure the performance of Rhode Island students with the most significant cognitive disabilities on the state's academic content standards in science – the Next Generation Science Standards (NGSS). RIAA Science must comply with all federal laws and regulations regarding the administration of alternate assessments based on alternate academic achievement standards (AA-AAS). To assist the department in meeting those requirements, RIDE is seeking proposals from contractors who have demonstrated experience and success developing, administering, and maintaining a large-scale state alternate assessment programs; and can demonstrate an understanding of the unique challenges and requirements associated with developing an alternate assessment in science.

### **Overview of RIAA Science**

RIAA Science will be administered annually to students in grades 5, 8, and 11 to students with the most significant cognitive disabilities. There are approximately 400 students total across the three grades who participate in the alternate assessment.

RIAA Science will consist of curriculum-embedded performance tasks. Each student will complete three performance tasks. Tasks will be administered by the teacher at a point determined by the teacher during an open testing window that runs from fall through early spring.

Although the curriculum-embedded performance tasks may include small group instruction, the assessment portions of the tasks are likely to be administered in a 1:1 setting with an individual teacher and student. An online system will capture student responses and/or scores (dependent upon the item type), based on information entered by the student or teacher.

Test materials will include a combination of computer-delivered materials (e.g., video, animation, diagrams) and hard copy materials delivered in a digital format through the online system to be printed by teachers for use during the assessment. Test materials may also be shipped to schools or districts and will include task-specific student kits containing required tools, supplies, and other materials not readily available in the classroom and materials not easily downloaded and printed (e.g., high-resolution color photographs).

### **Implementation Schedule**

- The first operational administration of RIAA Science will occur in the 2017-2018 school year.
- A statewide Field Test will be administered in spring 2017.
- Contractors may also propose a small-scale Task Tryout prior to the spring 2017 Field Test for newly-developed tasks.

The contract awarded through this RFP will cover all activities leading up to the 2017 Field Test through the reporting of results from first two operational administrations of RIAA Science during the 2017-2018 and 2018-2019 school years.

## **Relationship to the Current RIAA Science**

The assessment developed under a contract awarded through this RFP will replace the existing RIAA Science. Like the current assessment, RIDE expects that the new assessment will assess students' academic knowledge and skills with an instructionally-embedded performance task assessment that is administered by teachers throughout the year and uses experiments and performance events to assess a student's achievement of the science standards. Like the current assessment, the new assessment will include multiple tasks which are administered throughout the year. Unlike the current RIAA Science in which teachers develop the tasks included in a student portfolio, assessment tasks and related materials for the new assessment will be developed by RIDE and its assessment Contractor.

Additional information about the current RIAA Science assessment is available on the RIDE website (<http://www.ride.ri.gov/InstructionAssessment/Assessment/AlternateAssessments.aspx#18335-riaa>).

## **Relationship to the AA-AAS in other content areas**

RIDE administers the Multi-State Alternate Assessment (MSAA) as its alternate assessment in English language arts and mathematics. The MSAA is administered annually to students in grades 3 through 8 and 11 from March-May.

MSAA is a computer-based test administered through the open-sourced technology platform/delivery system (NCSC-TAO) that was originally developed as part of the National Center and State Collaborative (NCSC). Because all teachers administering science will also be administering MSAA in English language arts and mathematics, RIDE would like the same open-sourced technology platform/delivery system to be used for both assessments although not required.

## **Next Generation Science Standards**

Rhode Island adopted the Next Generation Science standards as its state science standards in May 2013. Local education agencies (LEA) have been adapting curriculum and instruction to align to the new standards over the last three school years. Although some teacher-developed tasks in the current RIAA Science may reflect the new standards, the assessment developed under a contract awarded through this RFP will be the first state-developed assessment aligned to the NGSS.

The use of instructionally-embedded performance tasks on the RIAA Science is intended to best reflect and support the concept of three-dimensionality that is at the core of the NGSS and includes Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas.

## **Part II Description of RIAA Science**

### **Description of the Performance Tasks**

The performance tasks for the Rhode Island Alternate Assessment Science are designed to serve as both an instructional unit that include formative and summative assessment components for students taking the alternate assessment. Teachers can repeat sessions within the tasks to ensure that students learn the essential concepts and standards included in the tasks. Because these tasks will also function as instructional units, they will include instructional materials as well as any materials related to the administration of the summative assessment portions of the tasks.

Each task will be aligned to the Next Generation Science Standards (NGSS) and incorporate the three dimensions that, when combined appropriately, create meaningful and relevant learning opportunities for students. The use of these performance tasks as the RIAA SCIENCE reflects our belief that *all* students have access to science experiences that broaden their understanding of the world we live in.

These instructionally-based performance tasks are designed to introduce and build on the essential elements in the NGSS Performance Expectations used to create the task. These essential knowledge and skills are then gradually built upon in subsequent sessions until the students reach the intent of the grade level standard. It is important to keep in mind that the tasks are designed using lessons in which the core ideas have been simplified using modified materials and experiments that are amenable to students with various cognitive and physical challenges. While the concepts in the tasks remain true to the NGSS standards, they do not embrace the full depth of complexity or rigor expected in a general education science classroom. In the previous alternate assessment for science, alternate achievement standards aligned to the general education standards were developed. Alternate standards will not be developed for the new assessment. However, the Performance Expectations (PEs) used in the tasks may be selected from the PEs already developed and included in the NGSS or developed by RIDE and the Contractor by modifying existing PEs to increase or decrease scope as necessary.

Each science task will be designed to form an instructional/assessment unit that is administered over multiple days. Although the actual pace of instruction and assessment will be determined by individual teachers and their students, the intent is that the RIAA Science tasks are not designed to be administered within a single day nor should they take more than three weeks to complete under anticipated administration conditions; however the rate of instruction will be variable and be dependent upon the individual strengths and needs of the students.

Each performance task will contain sets of summative items that are embedded in the task following relevant instructional sessions. Each task will contain a sufficient number of points to allow reporting of a score on the Science and Engineering Practices covered in each task set, a raw score on the domain being assessed through the individual task, and to support an overall science achievement level for each student. The number of points per task will be driven by the content of the task, but it is expected that the summative components of most tasks will contain between 20 and 30 points.

**Samples of the two performance tasks are included as attachments to this RFP: Physical Property Changes and Ecosystems. Both are grade 5 tasks.**

### **Design of the Operational Assessment**

At each grade level, the RIAA Science will consist of a set of three performance tasks to be administered by teachers during the course of instruction. The intent is that the set of three performance tasks will be designed to assess a common set of Science and Engineering Practices while varying the domains of science (e.g., Physical Science, Life Science, Earth and Space Sciences, Engineering, Technology). Each task will maintain the three-dimensionality of the NGSS. To capture this multi-dimensionality, each task must include at least one Practice(s) common to the set of three tasks, one or more Disciplinary Core Idea(s), and the Crosscutting Concept(s) relevant to the performance expectation(s) being assessed.

The tasks developed for the science assessment are instructionally-embedded and must include relevant content details for teachers to provide meaningful instruction for students while maintaining scientific integrity. As an instructionally-embedded performance task, materials will be developed that are not necessarily applicable to the assessment portions of the task but are designed to help teachers provide effective instruction. For example, the Ecosystems sample task includes the possible development of a story book that helps students understand how populations of organisms adjust when their environment is affected by fire.

RIDE, along with the Contractor, will agree on which group of Science and Engineering Practices will be addressed in each set of tasks.

During the first two operational administrations covered under the contract awarded through this RFP, it is expected that all teachers at each grade level will administer the same set of three performance tasks. However, as the pool of available performance tasks grows over time, teachers will have the flexibility to select individual performance tasks that fulfill the intended assessment blueprint for that year.

Teachers will have the flexibility to determine when to administer each of the performance tasks within the open testing window which will run from late fall through early spring.

### **Design of the Spring 2017 Field Test**

A statewide field test of performance tasks will be administered in spring 2017. The primary purpose of the field test will be to produce a set of performance tasks for at least the first operational administration of RIAA Science in 2017-2018. Under ideal circumstances, the field test will yield a sufficient number of tasks for the first two operational administrations of RIAA Science.

The design of the Spring 2017 Field Test will differ from the operational test design in several key aspects.

1. **Test Window:** The Field Test will occur within a small, defined test administration window. Given the anticipated start date of the contract, it is likely that the Field Test will occur in May, near the completion of the administration of the MSAA.
2. **Tasks per student:** Each student will complete only one performance task during the Field Test.
3. **Matrix-sampling:** Tasks will be matrix-sampled at the teacher level. That is, each teacher will be assigned one task to administer during the field test to all students in the tested grade.
4. **Reporting:** There will be no formal reporting of results from the field test to LEAs.

### **Number of Tasks per Grade Level**

Two options are being considered for the number of tasks to be administered during the Spring 2017 Field Test. A final determination will be made based on cost, time available for the development of tasks, and a consideration of the number of teachers and students available at each tested grade level.

The goal of the field test is to yield at least one complete set of three performance tasks at each tested grade for first operational administration of RIAA Science in 2017-2018. Ideally, the field test would yield enough tasks to build two complete sets at each tested grade level.

**Option 1:** Nine (9) performance tasks at each tested grade level (a total of 27 tasks) yielding three sets of three tasks.

**Option 2:** Six (6) performance tasks at each tested grade level (a total of 18 tasks) yielding two sets of three tasks.

Under both options at least two (2) performance tasks per domain will be developed and administered to fit an identified set of core Practices.

Under Option 1, a third performance task could be developed within each domain to begin to consider a different set of common Practices for the second, or a subsequent, operational administration.

## Scoring

### Items

1. Hand-scored items will be scored locally by teachers administering the test. Teachers will enter the score into the online test delivery system.
2. For machine-scorable items, the teacher or student will enter the response to be scored into the online test delivery system.
3. Scoring materials to include rubrics and sample student work (as appropriate) will be provided for all hand-scored items.
4. A system will be provided to train teachers in scoring and to audit a sample of scores from each test administration.

### Test

Scores from the summative items on each of the performance tasks will be aggregated to produce a total composite score for the student. The composite score will be used to classify student performance into one of four achievement levels.

## Reporting

The primary score reported from the RIAA Science will be the achievement level for individual students. In addition to the achievement level, individual students will also receive feedback that will include a raw score on the domain tested on each performance task and feedback on the student performance on the Practices across the three performance tasks.

**Individual Student Report:** The individual student report will be a hard copy report that contains the student scores described above as well as additional information to support the interpretation and use of the reports by parents and guardians.

**Aggregate Reports:** In addition to individual student reports, there will be aggregate reports summarizing results at the school, district, and state levels. The aggregate reports will be produced in pdf format to be delivered online and printed locally.

**School Roster:** A school roster will be produced to provide achievement level and summary performance task results for each student participating in the assessment. School Rosters will be produced in pdf format to be delivered online and printed locally.

**Performance Task Reports:** In addition to the overall RIAA reports, the online system should provide basic summary reports when responses and scores for each item within a task are submitted by the teachers. At a minimum, these reports would provide item level scores and a total score for the completed performance task for the individual student. All Performance Tasks reports will be delivered in real-time as performance task scores and responses are submitted.

All RIAA reports will be delivered within 21 days of the end of the testing window beginning with the second operational administration. For the first operational administration, all RIAA reports will be delivered within 21 days of the end of standard setting.

### **Security**

As a series of curriculum-embedded performance tasks, RIAA Science is largely a non-secure test. The Contractor, however, is responsible for ensuring the secure collection, transfer, and storage of all confidential student information.

Additionally, the Contractor should establish processes and procedures to establish appropriate test administration practices, to monitor test administration, and to identify likely breaches in ethical test administration practices.

### **Test Design and Development**

To the extent possible, materials developed for RIAA SCIENCE should be consistent in style and design with materials developed for the MSAA being administered in English language arts and mathematics. MSAA has developed several supporting documents containing guidelines for item writers as they develop MSAA assessment items. **The MSAA Style Guide, attached to this RFP, is for example only and will be altered to suit the intent and goals of this science assessment.**

The Contractor will maintain assessment specifications documents as needed or required and deliver updated documents each year.

The Contractor will work with the assessment system to create and manage tasks and test forms, ancillary materials, test administration documents.

### **Comparability of Results Across Years**

The comparability of RIAA Science results across years will be accomplished primarily through the design of the performance tasks, scoring rubrics, and test blueprints.

Field testing may also provide the opportunity to gather information about the relative difficulty of performance tasks to guide test construction.

## **Part III: Scope of Work**

### **Task 1. Project Management**

The Contractor will provide a description of the approach they propose to use to manage the development, implementation, and ongoing maintenance of the RIAA SCIENCE as described in this RFP. The Contractor will describe how the proposed approach is adequate to fulfill the work described in this RFP.

The Contractor will propose a management plan that includes a description of the proposed processes and methodologies that will be implemented for staff management, communication management, scope/change management, cost management, quality management, risk management, and schedule management.

### **Project Staff**

1. The Contractor will identify by name all persons proposed to fill key project management positions within this project. The Contractor will also provide the full-time equivalent (FTE) that each of the key project management staff will devote to work on this project.
2. The Contractor will provide staffing charts that show the proposed organization of program staff for this project, including the FTE devoted to work under this contract. The staffing charts should identify individuals fulfilling key project functions by name along with the hours that each will devote to this project. Aggregate hours should be provided for other personnel completing the following key tasks within the project:
  - project management
  - CBT system and content support
  - teacher training materials for task and test administration and use of the online system
  - task and item development
  - ancillary materials development
  - delivery of materials to districts and/or schools
  - data processing, including scanning and imaging, if applicable
  - scoring, including the development of scoring materials
  - psychometric activities and technical analyses
  - reporting
3. The Contractor will provide a 1-2 page vitae for each person proposed to fill a key management or operational role within this project. The vitae must include relevant educational background, professional experience, experience with the NGSS and instructionally-embedded performance task development.
4. If the Contractor proposes the use of any subcontractors to assist in or to complete any portion of this work, the Contractor assumes full responsibility for the management of those parties with regard to this project. The management plan must demonstrate that the Contractor has the capacity to coordinate project activities among any proposed subcontractors.

## **Task 2. Project Communication**

The Contractor shall propose a plan for efficient and regular communication between the Contractor and RIDE. The Contractor should propose mechanisms to ensure effective, efficient, and secure communication among all parties, including conveying relevant up-to-date information to and among project management, operational staff, RIDE staff, and any committees identified in this scope of work.

1. The Contractor will propose a schedule of regular conference calls to ensure all requirements and timelines are maintained and to address needs for problem solving and time-sensitive adjustments. The Contractor shall provide a toll-free conference line and secure online meeting software for project meeting calls.
2. The Contractor will propose a schedule of regular management and operational meetings necessary to ensure that all requirements and timelines are met. The meetings will take place at the Contractor's headquarters, RIDE, or at an appropriate site within Rhode Island dependent upon the nature of the meeting and proposed participants. RIDE anticipates that at least one in-person meeting per test cycle will be necessary for the following activities.
  - General Project Management
    - The Contractor should anticipate that the first in-person project management meeting will take place at RIDE within thirty days of contract execution.
    - The Contractor will be responsible for the logistics, facilities, and travel costs of their staff and required subcontractor's staff for all management meetings. The Contractor will be responsible for travel costs and expenses for relevant RIDE staff for all management meetings and oversight activities. The Contractor will make provisions for remote participation of any necessary Contractor or RIDE staff unable to travel to the meeting.
  - Development of a Scope of Work document that includes timelines and other relevant details
  - Task and item development
  - Task and item review
  - Task and test administration; including three (3) days of on-site teacher training and development of all training materials
  - Scoring and Reporting
  - Psychometric analyses
3. The Contractor will be responsible for the development, production, and dissemination of all information and materials necessary for all project calls and meetings, including, but not limited to, meeting invitations, agenda, materials, and minutes/action items.

4. The Contractor will propose a set of project management reports that will be provided to RIDE to document ongoing and completed project activities. At a minimum the reports will include an annual project schedule and scope of work to be reviewed and agreed upon at the beginning of each testing cycle.

### **Task 3: Performance Task Development**

All services related to test design, performance task development and review, operational task banking, and test production, including importing existing performance tasks and exporting newly developed performance tasks to the RIAA Science assessment system, are the responsibility of the Contractor.

1. RIDE and its consultants have developed sample performance tasks to guide development. Contractors are expected to continue to use and improve upon the foundation laid by RIDE during initial phases of performance task development.
2. No less than six (6) weeks prior to the beginning of each performance task development cycle, the Contractor and RIDE will determine how to target performance task development.
3. The Contractor is responsible for ensuring that the quantity of performance tasks developed and submitted for review to be considered for field testing is sufficient to:
  1. Produce unique operational test forms for each annual operational administration.
  2. Eventually allow for the replacement of a portion of tasks annually to avoid overexposure and overuse.
  3. Support the periodic retirement and release of a limited number of tasks and student work per grade for use in training and other support materials beginning with the 2019-2020 administration.
4. Following an initial review of the assessment item bank following first two operational administrations, the Contractor may propose phase-in schedule and guidelines for the replacement of performance tasks within an assessment to maintain the quality of the assessment.
5. The Contractor shall identify and recruit a sufficient number of highly-qualified writers with understanding of the NGSS standards for performance tasks and/or instructionally embedded performance tasks to ensure variety and quality of development.
6. The Contractor shall be responsible for internal reviews to ensure task clarity, content accuracy, adherence to the style guide, established task specifications, psychometric properties, difficulty, readability requirements, and potential bias and sensitivity. It is unacceptable to submit for review at any time during the development process, proposed tasks that contain blatant errors, spelling errors, or grammar mistakes.
7. Delivered performance tasks and items are those that have survived the committee review prior to and after field testing and include the following, as necessary:

- All QTI/APIP code required to be rendered and functional on the assessment delivery platform, as required by the task.
  - All required APIP tagging for items or stimulus that students may interact with or view within the online assessment system
  - Task history (dates and outcomes of all item reviews including previous versions)
  - Aligned NGSS standard(s) and performance expectations
  - Scoring rubrics
  - Associated texts, videos, pictures, and other materials and permission statuses.
  - Cognitive complexity level
  - Linguistic complexity level
  - Metadata
  - Task and item statistics (post-field test and post-assessment)
8. **Item Types:** The RIAA Science performance tasks may contain a mix of selected-response items (e.g., multiple-choice) and constructed-response items. Selected-response items are scored dichotomously, right/wrong. Constructed-response items are scored according to item-specific rubrics.
9. **Accessibility Features and Accommodations:** The Contractor will ensure that any newly-developed performance tasks meet requirements for accessibility. The online system that will be used for this assessment (used and developed by MSAA) has been designed to include assessment features to support accessibility for all students. These include features that are built into the online test platform as well as those that can be provided by the teacher, if necessary. The table below provides a summary of built-in and teacher-provided test supports embedded in the online test platform and provided by the teacher. The Contractor should refer to the *NCSC Assessment System User Guide for Test Administrators, Appendix I*, for additional information on MSAA accessibility features.

However, performance tasks should be designed with the accessibility needs of students already addressed within the design of the task and should not rely on external accommodations or accessibility features to provide access for students. This includes special attention to physical challenges, unique communication systems, and the difficulty with which students who take the alternate assessments have with generalizing information.

**Table: Summary of built-in and teacher-provided accessibility features in the MSAA Online Assessment System**

<b>Computer</b>	<b>Teacher-Provided:</b> corresponding alternatives used to support paper-based administration.
Answer Masking	Piece of paper that covers one of more of the answer options; the answers the student has eliminated
Alternate Color Themes	Color overlays
Increase Size of Text and Graphics (magnification)	Adjust size before printing
Increase Volume	Use separate testing space if not using headphones
Line Reader Tool	Two pieces of paper on either side of the line the student focuses on
Text-to-speech (audio player)	Read aloud/re-read

**Accommodations include the following:**

**1. Braille Student Materials:**

- Copies of the regular performance tasks must accompany the shipment of the Braille materials. Braille notes also accompany the Braille versions.
- The Braille code must be provided in Unified English Braille (UEB).
- The Contractor is responsible for having the materials proofed by an independent party that includes a certified Braille reader. RIDE may also employ the services of a Braille proofreader. If the Contractor utilizes a subcontractor to publish the Braille and large-print materials then that subcontractor must be approved by RIDE.
- Braille materials used by students during administration of the tasks must be available to ship with regular-format versions of the materials prior to test administration.

**2. Large Print Student Materials:**

- Materials used by students during testing must be provided in a large print format and be available for shipment with regular ancillary materials.
- Quality of graphics, photos, etc. must be identical to regular-sized printed materials.
- A minimum of 18-point type on 14" x 17" approved paper with options for additional point size.

**3. Black and white or Line art of graphics, charts, and tables.** All student materials should be available in black and white (grayscale) and line art without shading for students with various visual impairments.

**4. Use of assistive technology**

**5. Scribe**

6. **American Sign Language:** MSAA is currently developing guidelines for providing ASL translation. **The draft ASL guidelines are included as an attachment with this RFP.**

#### **Task 4. Performance Task Review Process**

1. **Task Reviews:** Prior to field testing, all tasks developed by the Contractor are subject to review by RIDE and educator committees for a series of critical factors to ensure appropriate quality and accessibility:
  - **Content Review** – to ensure that tasks meet the requirements detailed in the Style Guide and they are aligned to the NGSS PEs selected and/or developed for the task.
  - **Bias, Sensitivity, and Accessibility Review:** to ensure that tasks, items, and materials are free from bias, fair, and accessible to students with a variety of cognitive and physical challenges and communication systems such as eye gaze, pointing, AAC, and switches.
  - **APIP Review:** as applicable to ensure that items included in the tasks are compliant with APIP standards.
  - **State review and approval:** to ensure that all tasks and items meet established criteria and best practices for development, RIDE must review all tasks prior to educator committee review. Following field testing, a review of all relevant item statistics by RIDE must be conducted.
2. The Contractor shall be responsible for supporting the organization of educator committees and convening meetings, as needed, to support the series of reviews described above.
  - As appropriate, relevant stakeholders and local educators should be included in the review process.
  - The state will identify pools of state-level stakeholders and/or educators who have the appropriate qualifications for each level of the review process.
4. Based on the chronology of task and test development and the expertise required in each review process, multiple meetings with different participants will be needed to complete the review process. RIDE, however, is interested in implementing a process that produces quality tasks and assessments in as efficient a manner as possible. The Contractor will propose a plan and schedule for an annual task review process that includes consideration of the following:
  - Grade-level and content area expertise needed by Contractor staff, state, and stakeholders
  - Effective balance of in-person and virtual meetings
  - Training required for effective participation in task review
  - Maintaining task security throughout the review process
  - A process for securing final approval from RIDE
5. The Contractor’s plan will include a description of the number of meetings and number and type of people involved in each meeting throughout the review process.

6. The Contractor's test development project manager, appropriate grade and subject area developer(s), and support staff as needed, shall participate in all review meetings (listed above) to manage the meetings and to be responsible for the organizing, distributing, secure material tracking, note keeping, data entry functions, and other tasks required for meetings. Arrangements shall be made for the secure distribution and collection of materials, as appropriate.
7. The Contractor will prepare performance tasks and ancillary materials needed for implementing the tasks, and all other materials required to conduct the item content review meetings. The Contractor shall propose a process for conducting the performance task review meetings that is cost effective and efficient, accounting for the participation of state representatives and educators.

### **Task 5: Field Testing During the Operational Administration**

During the operational administration, newly-developed performance tasks will be field tested by volunteer teachers and students, or through embedded field testing, either prior to or during the operational test window.

1. The Contractor will propose a plan for field testing up to three new performance tasks at each grade level during each operational administration of the test that allows for sufficient time for the teacher to adequately instruct and assess the student.
2. The Contractor will include a method by which to include students with a variety of cognitive and physical challenges and who use a variety of communication systems to ensure maximum accessibility by all students participating in the alternate assessment.
3. Gather information on how well the tasks provide for effective instruction by teachers as well as any data on students.
4. Provide information on the likely size and composition of the field test sample (small, multiple teachers, 2-30 students)

### **Task 6: Test Administration**

The Contractor is responsible for all aspects of test administration for the spring 2017 Field Test, and the 2017-2018 and 2018-2019 operational test administrations.

#### **Teacher Training**

1. The Contractor will propose a plan for the development of all training materials for test administration. This includes the development of online self-paced training modules and materials for in-person training for approximately 100-200 teachers.

#### **Online Test Delivery Platform**

1. The Contractor will implement a secure online test delivery platform that meets industry-standards for security including PEN test results and a plan for addressing potential security breaches.

2. The Contractor will implement an online test delivery platform that contains the following user features:

- State user views of all student and test administrator information (name, district, school, DOB, state ID number for students).
- Ability to search for individual students by district, grade, and school
- Ability to view tests that have been started and completed.
- Ability to delete and transfer students between schools and districts
- Ability to edit student and test administrator information

### **Shipping and Electronic Dissemination of Materials, Including Student Reports**

3. The Contractor will develop a plan for the secure and efficient distribution and retrieval of all materials related to all administration of the RIAA SCIENCE tests. This includes any materials delivered via the online test delivery platform and any shipped materials; including ancillary test materials kits and/or other printed materials required for instruction and test administration. The plan will include a description of how materials will be tracked throughout the test administration process including shipping to and from districts and schools. To assist with this process, RIDE shall provide the Contractor a datafile of district and school addresses for each test administration.

4. The Contractor will include a process for allowing district and schools within the district to view materials shipment orders by grade level including dates when materials were ordered, how many of each material were ordered, the range of dates that the school/district can expect materials to be delivered, and the person and address to whom the materials will be delivered.

5. The Contractor will establish and describe an online system for the online dissemination and shipping of state, district, school, and student reports.

6. The packaging plan for the distribution and shipping of the paper and ancillary test materials, as appropriate, shall use the following guidelines:

- Test materials shipped to districts are boxed separately for each school and delivered to the test coordinator at a single address based on the specific requirements.
- RIDE will provide preliminary shipping addresses for all districts and schools in a datafile.
- The Contractor shall establish procedures for confirming and correcting, as necessary, shipping addresses prior to every test administration.
- The on-site window for shipped ancillary test materials and paper-based test materials is 2-3 weeks prior to the test window.
- Provide a detailed confirmation that each district's or school's order was received by the district or school at the correct address during the appropriate in-site window.

7. The Contractor should have a plan to address materials overage.
8. The late orders process shall use the following guidelines:
  - Procedures shall allow test coordinators to order additional test materials after the receipt of their original order.
  - RIDE will have approval authority of all late orders prior to material distribution.
  - Appropriate timelines for the late test materials ordering window to be developed and approved by RIDE.
  - All test materials ordered during the late ordering process shall be in-site no later than two schools days after the late order was placed.
  - The Contractor will provide detailed confirmation that each late order was packaged accurately and was received by the district or school at the correct address no later than two school days after the order was placed.

#### **Task 7: Test Administration Materials**

The Contractor will propose a plan for the development and revision, review, approval, and production of electronic, web-ready versions of all test administration materials (including materials for instruction), sample tasks, and released tasks. Those materials will include, but may not be limited to the following:

1. Test Coordinator/Principal Manual
2. Test Administration Manual
3. Practice performance tasks for each tested grade level; including instruction and student materials
4. Scoring materials for hand-scored items
5. Platform User Guide
6. Materials to Support the Interpretation and Use of Test Scores
7. Test Security Materials

#### **Task 8: Support Center**

The Contractor will provide a detailed plan for providing customer support to districts and schools throughout the testing cycle, with an emphasis on service provided at key periods such as registration of students and test administration.

1. The Contractor will describe processes, procedures, and systems used to ensure timely and accurate assistance and that all interactions with districts and schools are documented.
2. The contractors will describe the measures used to monitor and document the efficiency and accuracy of the service provided.
3. The Contractor will provide a plan to guarantee that help desk staffing will increase and/or decrease based on call volume and wait time/caller. When staffing increases/decreases will be determined with state leadership and approval.

4. The Contractor will provide help desk and technical support via toll-free phone, e-mail, and/or other online methods Monday through Friday from 7:00 a.m. EST/EDT through 4:00 p.m. EST/EDT.
5. The Contractor and the state will agree upon the type of questions and issues that will be addressed by the Contractor, what actions the help desk and other Contractor staff will take to resolve and/or answer those questions and issues, and the type of questions and issues that will be forwarded to state leadership for resolution.
6. The Contractor must develop a Service Level Agreement (SLA) to ensure that the system specifications, performance, and support are appropriate and acceptable. The SLA should have a Level 1 (basic level), Level 2 (intermediate level), and Level 3 (technical level) services.
7. The Contractor will provide the following levels of help desk customer support to district and school administrators and educators. The SLA and support processes, shall include at a minimum the following:
  - availability
  - reliability
  - latency
  - disaster recovery plan
  - server backup plan
  - recovery point objective
  - issue resolution times
  - maintenance windows
  - service reporting
  - support hours
  - support contact information
  - escalation
  - errata notice distribution
  - change management
8. **Call Center Metrics:** Contractor's Customer Call Center will provide administrative monitoring and tracking and daily reporting to RIDE of the following metrics for every hour and day that the call center is in operation.
  - Average time to answer
  - Maximum time to answer
  - Average length of call
  - Maximum length of call
  - Call hold time
  - Call abandonment rate
  - Classification of calls in a mutually agreed form
  - Percent achieving satisfactory resolution on initial call at Level 1 and at Level 2
  - Percent of calls achieving satisfactory resolution within 1, 4, 8 and 24 hours
  - Percent not achieving satisfactory resolution within 24 hours

9. The Contractor must include a plan for timely electronic notification to district and school administrators and test administrators through email, posting a notice on the online system, and/or direct calling, of any issues affecting test administration.
10. The Contractor must develop an errata notice template that includes a description of the issue, the timeline for resolution, and any required actions that need to be taken by district or school administrators and/or test administrators.

### **Task 9: Scoring**

The Contractor will be responsible for establishing processes and procedures to promote the efficient and accurate scoring of all student responses. For hand-scored items included in tasks, this includes the development of scoring materials and resources to be used by teachers scoring student responses. For machine-scored items, this includes processes that ensure and verify that all student responses are captured and scored correctly.

1. **Machine-scored items:** The Contractor will describe the process for capturing and scoring student responses to machine-scored items.
2. **Hand-scored items:** The Contractor will describe the process for developing scoring rubrics and related scoring materials that will be used by teachers to score all hand-scored items included in the tasks to ensure that teachers score items accurately. The Contractor will identify any item types that pose a particular challenge for scoring by teachers.
  - The Contractor will propose a system for auditing of hand-scoring by teachers for the primary purpose of improving the accuracy of scoring on future test administrations.

### **Task 10: Psychometric Services**

The Contractor will provide a description of all psychometric activities and services that will be provided for this project. That description should include, but not be limited to, psychometric activities and services related to:

1. Performance task and test development
2. Field testing
3. Task and item scoring
4. Producing composite student scores
5. Assigning achievement levels
6. Ensuring the comparability of results across years
7. Evaluating the technical quality of the assessment.
8. The Contractor will produce an annual Technical Report following the Spring 2017 Field Test and each operational administration. The purpose of the Technical Report is to document relevant information to provide evidence of the validity and reliability of the alternate assessment science tests for their intended uses. The Contractor will propose a design for the format and

content of the Technical Report that will be approved by RIDE. The Technical Report will be delivered in electronic format to be posted on RIDE's website.

9. In addition to the Technical Report, the Contractor will support RIDE, as needed, in identifying, documenting, and compiling other information needed for Technical Advisory Committee (TAC) meetings and USED Peer Review.

### **Task 11: Standard Setting**

1. The Contractor will propose a standard setting process that will result in the identification of achievement level cut scores following the first operational administration of the tests in the 2017-2018 school year. The proposed process should be consistent with and appropriate for the type of information that will be provided by the RIAA Science assessments. The proposed process should include a description and timeline for all activities that will take place related to standard setting, including the development of achievement level descriptions and the determination of the number of achievement levels that will be reported.
2. The Contractor will be responsible for all costs associated with standard setting, including, but not limited to, costs related to assembling committees; arranging, facilitating, and conducting meetings; analyzing results; and documenting the standard setting process.

### **Task 12: Reporting**

The Contractor will be responsible for the design, production, and secure distribution of all reports of student, school, district, and state results required for this project. RIDE will approve all wording, the final design, and layout of all reports and reporting documents.

All reports, with the exception of Performance Task Reports, will be delivered within twenty-one (21) days of the end of the testing window beginning with the second operational administration. All reports, with the exception of performance task reports, will be delivered within twenty-one (21) days of the end of standard setting following the first operational administration.

All reports, with the exception of individual student reports, will be provided in electronic format only. Individual student reports will be provided as hard copies, with two copies of each individual student report delivered to the school.

All data files will be prepared in a format agreed upon by RIDE and delivered to the state, districts, and schools in a secure manner agreed upon by RIDE.

1. The Contractor will propose a design for each required report and work with RIDE to determine the final format of the reports beginning with the first operational administration.
2. The Contractor will propose a design for a parent/guardian letter and parent-friendly interpretive document.
3. The Contractor will be responsible for developing report interpretation documents for educators and parents.

4. The Contractor will describe the processes and procedures or systems that will be used to ensure the accuracy of all information included on reports, including, but not limited to, student/school/district identifying information, demographic and program information, test/task identifying information, and state/district/school/student results. The proposal should include a description of any review procedures that will be available to the state and/or schools prior to the release of results.
5. The Contractor will propose a system for the secure and efficient delivery of electronic reports and data files to schools, districts, the state, and any other appropriate parties. The system must include the capability to ensure the security of confidential data and limit access to reports and data files to authorized individuals. The Contractor's proposal should include a description of the proposed reporting system as well as the system for ensuring security.
6. The Contractor will be responsible for correcting, at the Contractor's expense, any errors in reporting arising from activities that are the responsibility of the Contractor. This may involve, but is not limited to, activities such as scoring errors, conducting analyses, and supporting analyses conducted by or commissioned by RIDE. The Contractor will identify the cause and extent of errors; and reprogram and/or reproduce reports, replace data files, and redistribute electronic or hard copy reports.
7. The Contractor will propose a system for correcting errors in reports arising from activities or actions by the state, district, or schools.

### **Task 13: Test Security**

Although the alternate assessment for science is largely a non-secure test, the Contractor will propose a plan that describes the steps that will be taken to ensure the following:

1. The transfer of confidential student information, including, but not limited to, student identifying information, student responses, and student results.
2. The identification of breaches in test administration procedures or ethical testing practices.
3. The secure storage and/or destruction of secure and confidential information.

### **Task 14: Disposition and Storage of Materials**

The plan for secure storage and secure destruction of materials, including electronic data files containing student information or secure test information, shall use the following guidelines:

1. **Unused Task Materials:** After testing, the Contractor shall inventory and store any paper-based unused task materials for use in future test administration cycles. During this time, the Contractor shall be required to ship quantities of these materials, as necessary, to the state.
2. **Documents and electronic files containing student information and responses:**
  - The plan for the secure, collection, storage, and use of all student data must be approved by RIDE. The Contractor shall not use student information for any purpose other than those related to the implementation of the assessment program and approved by RIDE.

- The Contractor shall store paper-based documents containing student responses and all electronic student CBT response files, at Contractor expense, for at least one year.
  - At the end of a specified the period, the Contractor shall ship or destroy the materials according to instructions from RIDE.
  - Destruction of secure documents and CBT student response files shall be requested in writing and authorized by the RIDE.
  - The Contractor shall submit a letter to RIDE requesting permission to destroy specific materials.
  - Test security requirements shall be maintained throughout the destruction process.
  - It may be necessary to retain a small number of used documents for a longer time period due to a State’s security investigations.
  - At the end of the contract, the Contractor shall be expected to ship these materials to the new Contractor at the direction RIDE.
3. **Excess Test Materials:** The plan for excess test materials shall require RIDE approval.
- The Contractor shall store some digital record of the CBT assessments as they appeared to the students for that administration.
  - Any materials that may be used in subsequent administrations shall be stored by the Contractor throughout the life of the contract.
  - Six (6) months after the contract ends, the subcontractors and print contractors shall be required to destroy all electronic files and print copies according to the test security requirements approved by RIDE.
  - The Contractor and all subcontractors shall submit certificates of destruction that describe in writing the specific materials and files destroyed.

## Terms of the Contract

The contract will begin **upon issuance of state purchase order (projected January, 2017)** and end **three years after the start of the contract**. The scope of the work may be modified by RIDE prior to beginning work on a given task. RIDE retains the option of granting a time extension of up to **two years** with additional funding if available and if the level of work is expanded by mutual written consent. If necessary, deficiencies in performance of services and/or failure to supply deliverables in a complete and timely manner will be documented in writing by RIDE. Should a pattern of substantial dissatisfaction become apparent, RIDE reserves the right to terminate the contract.

## Cost Proposal/Terms of Payment

The Contractor must prepare a cost proposal reflecting the hourly rate or other fee structure proposed for this scope of services using the Cost Proposal Forms contained in Appendix A. Please ensure the budget is presented by state fiscal year, which runs from July 1st through June 30th.

Please note that reimbursement for travel within the continental United States will be limited to the per diem rates established by the General Services Administration (GSA). Per diem rates are posted at [www.gsa.gov/perdiem](http://www.gsa.gov/perdiem).

## Proposal Submission

Questions concerning this solicitation may be e-mailed to the Division of Purchases at the address on the cover sheet of this solicitation and no later than the date & time listed. **Send your questions in Microsoft Word format**. Please reference the RFP# on all correspondence. Questions received, if any, will be posted and answered on the Internet as an addendum to this solicitation. It is the responsibility of all interested parties to download this information. For computer technical assistance, call the help desk at (401) 222-3766 or [Lynda.moore@doit.ri.gov](mailto:Lynda.moore@doit.ri.gov).

Proposals (an original plus 4 copies) should include the following:

1. A completed and signed three-page RIVIP Bidder Certification Cover Form, available at [www.purchasing.ri.gov](http://www.purchasing.ri.gov).
2. A *separate* Cost Proposal as described above.
3. A *separate* Technical Proposal (see below) describing the qualifications and background of the applicant and experience with similar programs, as well as the work plan or approach proposed for this requirement.
4. A completed and signed W-9 (taxpayer identification number and certification). Form is downloadable at [www.purchasing.ri.gov](http://www.purchasing.ri.gov). Deliver to:

Department of Administration  
Office of Purchases  
One Capitol Hill  
Providence, Rhode Island 02908

5. In addition to the multiple hard copies of proposals required, Respondents are requested to provide their proposal in electronic format (CDRom, diskette, or flash drive). Microsoft Word/Excel or PDF format is preferable. Only 1 electronic copy is requested and it should be placed in the proposal marked "original."

Contractor assumes all responsibilities for proposals submitted by mail or commercial delivery service. Proposals misdirected to other state locations or which are otherwise not present in the Office of Purchases at the time of opening, for any cause, will be determined to be late and will not be considered. Faxed responses will not be considered.

## Technical Proposal/Required Elements

1. **Work Plan** (35 points)
  - Detailed, reasonable timelines for deliverables, and reflects understand of the population of students this test will serve.
2. **Capacity of the Agency Effectively to Administer the Project:** (35 points)
  - This includes involving staff that have expertise in NGSS, developing instructional materials, large scale assessment management and design, and online testing platforms. Additional points will be awarded for these specific areas.
3. **Cost Proposal** (30 points)

The technical proposal should be 10-20 pages in length, respond to each area of the required elements listed above, and contain a cost proposal using the forms in Appendix A. Supplemental information may be appended to the technical proposal.

A Selection Committee will evaluate submitted proposals on the basis of the above criteria items. Consultant Teams may be invited to appear before the Committee for in-person presentations. The Committee will then make a qualifications-based recommendation for final selection to the Rhode Island State Purchasing Agent, or her designee, who will make the final award decision.

To advance to the cost evaluation phase, the technical proposal must receive a minimum of 40 out of a maximum of 70 technical points. Any technical proposals scoring less than 40 points will not have the cost proposals opened and evaluated. The proposal will be dropped from further consideration.

Proposals scoring 40 technical points or higher will be evaluated for cost and assigned up to a maximum of 30 points in the cost category, bringing the potential maximum score to 100 points.

Notwithstanding the above, the State reserves the right not to award this contract or to award on the basis of cost alone, to accept or reject any or all responses, and to award in its best interest.

Responses found to be technically or substantially non-responsive at any point in the evaluation process will be rejected and not considered further. The State reserves the right to reject any or all responses submitted and to waive any informalities in any vendor's submission.

A notice of bid protest pursuant to R.I. General Law 37-2-52 must be filed with the chief purchasing officer by the protestor in accordance with the guidelines provided in

Section 1.6 of the State of Rhode Island Procurement Regulations, which can be accessed at the following link: <http://www.purchasing.ri.gov/RIVIP/publicdocuments/RULES2011/SEC1.pdf>

The contract agreement resulting from this award will include all provisions outlined in Title 2 of the Code of Federal Regulations, Chapter 2, Appendix II to Part 200. These provisions can be accessed at the following link: [www.ecfr.gov](http://www.ecfr.gov)

## APPENDIX A: Budget Multi-Year Projects

The Contractor estimates that its budget for work to be performed under this Agreement is as follows:

Expense Category	Estimated Expenditures				
	Year 1	Year 2	Year 3	Year 4	Year 5
1. Employee Salary and Benefits	0	0	0	0	0
2. Purchased Services	0	0	0	0	0
3. Task Test Materials Production	0	0	0	0	0
4. Task Review Committee	0	0	0	0	0
5. Platform Hosting	0	0	0	0	0
6. Travel	0	0	0	0	0
7. Training and Scoring Materials	0	0	0	0	0
8. Office Expense	0	0	0	0	0
9. Service Center	0	0	0	0	0
10. Other: (describe)	0	0	0	0	0
Subtotal	0	0	0	0	0
Indirect Cost *	0	0	0	0	0
<i>TOTAL</i>	0	0	0	0	0

It is understood and agreed that the amounts indicated above for the several line items are estimates of expenditures to be incurred by the Contractor on behalf of this Agreement and to be claimed by the Contractor for reimbursement under this Agreement. It is further understood and agreed that actual expenditures may vary from the estimates set forth above and that such variations shall not in themselves be cause for disallowance of reimbursement by RIDE; provided, however, that the Contractor shall notify the contract officer of the variance and obtain pre-approval, in writing; and provided further that unless permission of the contract officer shall have been obtained in advance, no expenditure shall be claimed by the Contractor for reimbursement by RIDE under this Agreement if such expenditure shall have been incurred in a line item category not listed above. Transfer of funds between categories requires prior written approval by RIDE. In no event shall the total amount of reimbursement claimed by the vendor under this agreement exceed the total approved contract amount.

**\* Attach a copy of the approved indirect cost documentation**

BUDGET DETAIL SHEET \*

FISCAL YEAR \_\_\_\_\_

**EMPLOYEE SALARY AND BENEFIT DETAIL (TOTAL COMPENSATION)\*\***

NAME	POSITION TITLE	NUMBER OF HOURS	HOURLY RATE (including benefits)	SALARY and BENEFIT TOTAL
<b>TOTAL REQUEST</b>				

**PURCHASED SERVICES DETAIL**

NAME	POSITION TITLE	HOURS	HOURLY RATE	TOTAL
<b>TOTAL REQUEST</b>				\$

**OTHER EXPENDITURES DETAIL**

EXPENSE CATEGORY	DESCRIPTION	TOTAL
Task Test Materials Production		
Travel ***		
Task Review Committee		
Platform Hosting		
Office Expense		
Training and Scoring Materials		
Service Center		
Other: <i>(describe)</i>		
Indirect Cost		

\* Please include a detail budget sheet for each state fiscal year (July 1<sup>st</sup> – June 30<sup>th</sup>)

\*\* Please round hourly rates to the nearest whole dollar and ensure there are no rounding differences with the extended totals.

\*\*\* Reimbursement for travel within the continental United States is limited to the per diem rates established by the General Services Administration (GSA). Per diem rates are posted at

[www.gsa.gov/perdiem](http://www.gsa.gov/perdiem).

# Rhode Island Science Alternate Assessment Performance Task

## Grade 5 | Physical Properties and Mixtures

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## Introduction

This performance task for the NGSS Alternate Assessment is designed as both an instructional unit with formative assessment components and as a summative assessment for students taking the alternate assessment. Teachers can and should use this task as often as is necessary for students to learn the essential concepts and standards covered in this task.

This task is aligned to the Next Generation Science Standards (NGSS) and incorporates the three dimensions that, when combined appropriately, create meaningful and relevant learning opportunities for students. It is important that *all* students have access to science experiences to broaden their understanding of the world we live in.

This task was designed to introduce and build on the essential elements in the NGSS Performance Expectations used to create this task. That essential knowledge and skills are then gradually built upon in subsequent sessions until the students reach the intent of the grade level standard. It is important to keep in mind that this task was designed using lessons in which the core ideas have been simplified using modified materials and experiments that are amenable to students with various cognitive and physical challenges. While the concepts in this task remain true to the NGSS standards, this task does not embrace the full depth of complexity or rigor expected in a general education science classroom.

## Next Generation Science Standards

The *Framework for K-12 Science Education (NRC, 2012)* provided the foundation for the development of the Next Generation Science Standards. The NGSS are written as performance expectations that integrate three dimensions. These dimensions include Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts. Together, these three dimensions create rich science experiences that focus students less on the science content and more on the skills and abilities necessary to think and interact with the world in a scientific way. Below are the Performance Expectations and the three dimensions to which this task is aligned.

Students who demonstrate understanding can:

**5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.**

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>Planning and Carrying Out Investigations</b></p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"><li>Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.</li></ul>	<p><b>PS1.B: Chemical Reactions</b></p> <ul style="list-style-type: none"><li>When two or more different substances are mixed, a new substance with different properties may be formed.</li></ul>	<p><b>Cause and Effect</b></p> <ul style="list-style-type: none"><li>Cause and effect relationships are routinely identified and used to explain change.</li></ul>

Students who demonstrate understanding can:

**5-PS1-3. Make observations and measurements to identify materials based on their properties.**  
[Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>Planning and Carrying Out Investigations</b></p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"><li>Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.</li></ul>	<p><b>PS1.A: Structure and Properties of Matter</b></p> <ul style="list-style-type: none"><li>Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.)</li></ul>	<p><b>Scale, Proportion, and Quantity</b></p> <ul style="list-style-type: none"><li>Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.</li></ul>

## Task Description

**Physical Properties** assesses students' ability to plan and carrying out an investigation to determine if mixing two substances leads to the formation of a new substance. They will use their senses (see, hear, or feel) to make observations on the physical properties of a substance. They will learn that when the physical properties of a substance change when mixed with another substance, it indicates that a new substance has been formed. Identifying physical properties and how reactions between substances can form new substances is an important part of learning about and understanding the world we live in.

## Timing and Scheduling

This task is divided into four sessions. There are no time constraints for this task and sessions can be divided into smaller lessons as student needs require. Pacing should also be adjusted based on individual student abilities and lessons should be repeated as necessary.

## Session Descriptions

This task was designed to begin at a basic level and progress toward more complex concepts and are designed to be repeated as often as necessary. For this reason, the order of the tasks should not be changed or swapped. The goal of this task is for students to progress through all of the sessions. If a session needs to be broken into smaller components for a student, that is acceptable.

### **Session 1: Observing and Identifying Physical Property Changes**

**OBJECTIVE:** Students will be able to identify changes in the physical properties of a substance using their senses (hear, smell, taste, and touch). The physical property changes students will identify include color change, temperature change, the production of bubbles (gas), and the dissolving of one substance into another.

### **Session 2: No Change in Physical Properties**

**OBJECTIVE:** Students will use their senses to recognize when the physical properties of a substance stay the same when mixed with another substance.

### **Session 3: Planning and Carrying Out the Investigation**

**OBJECTIVE 1:** Students will understand that when the physical properties of substances change, when combined with other substances, it means that a new substance has been formed.

**OBJECTIVE 2:** Students will be able to collaboratively plan the steps of an investigation to test whether a new substance is formed when two substances are mixed together.

**OBJECTIVE 3:** Students will be able to use the data from their investigations to determine if a new substance has been formed.

### **Session 4: Carrying Out the Investigation and Analyzing and Interpreting the Results**

**OBJECTIVE:** Students will carry out the investigation with different pairs of substances to identify if there was a property change and if a new substance was formed.

## Accommodations and Allowable Supports

As teachers read through the task and prepare to instruct students, there are many ways that this task can be adjusted and accommodations made for students with a variety of physical and cognitive challenges. The following supports are allowable for this task during instruction and assessment portions:

**Reaction Cards and Investigation Planning Cards:** The Reaction Cards in Appendix A and the Investigation Planning Cards in Appendix B of this task are color photos that include important information that students will need to be aware of as they work on this task. These cards can be adjusted in the following ways: enlarged for students with visual impairments and printed in black and white if that is preferable for the student. ***These cards cannot be reproduced or redone using clipart or cartoon representations of the steps of the investigation.***

- **Objects:** If students require objects such as plastic or actual objects of beakers, containers, stirrers, etc., that is acceptable as long as they are *actual or accurate* representations of the changes in physical properties shown on the Reaction Cards or steps pictured on the Investigation Planning Cards found in the Appendices.
- **Symbols:** Information on the cards can be transcribed into Meyer-Johnson symbols or tactile graphics. None of the information on the cards may be simplified or changed and must be transcribed exactly as presented on the cards.

**Scripts/questions teachers ask students:** The questions teachers ask students are suggestions only and can be used “as is” or modified depending on student needs and their understanding of the vocabulary contained in this task. This task is designed as an instructional unit so repeating essential vocabulary and concepts is acceptable and encouraged.

**Vocabulary:** There is a word list with definitions included in each session of this task, as necessary. These definitions are for teachers to use as they adapt this task for the needs of the students in their classrooms. Acceptable and scientifically-accurate phrases and concepts are included in the definitions that teachers can use. It is important that these phrases and concepts are used during instruction. If there are common misunderstandings, those are also noted so teachers will understand and avoid using them.

**Communication:** Students should have a communication system that they can initiate on their own. Object replacement, ASL, AAC, etc., are all acceptable. Hand-over-hand and other physical prompts are not allowable on the assessment portions of this task.

## Assessment Rubrics

Teachers may use the rubrics during instruction as formative assessment as well as during the summative assessment.

**NOTES: The teacher will upload a picture of the student work for each item in addition to entering the student’s rubric score.**

## Teacher Guidance in Task Administration

The following pages are designed to provide guidance to the teacher in the administration of the task.

There is no prescribed script for this task. The Instructional Notes for each session include examples of what the teacher should do at a given point in the task. Aside from listed vocabulary, teachers should feel confident to use words, pictures, photographs, and symbols that the student is comfortable and familiar with as long as they adhere to the guidelines found in the section *Accommodations and Allowable Supports*.

This task is designed as a series of assessment tasks but should be viewed as instruction by the student. Teacher interaction with the students during this task should be the same as a normal instructional setting.

**NOTE ON SAFETY:** For the activities in this task, make sure you and your students follow these safety rules:

- Wear safety glasses.
- DO NOT spill iodine on your skin, because it stains.
- DO NOT taste any substance in this task.
- All substances used in this lab are non-toxic but may irritate your eyes. This task is designed for students to be able to touch the substances, with the exception of iodine. Please encourage to feel the substances if they are able.

## Session 1: Observing and Identifying Physical Property Changes

**OBJECTIVE:** Students will be able to identify changes in the physical properties of a substance using their senses (hear, smell, taste, and touch). The physical property changes students will identify include color change, temperature change, the production of bubbles (gas), and the dissolving of one substance into another.

- **Instructional Notes:** Please use only the materials listed below to avoid confusing students. For example, Kool-Aid also dissolves but comes in many colors; the color change could be confused with dissolving.
- Instruct each physical property change separately using the following activities. For each of the activities, have the student use their senses to identify what happens.

**Materials:** soda bottle or can, water, blue food coloring, yellow food coloring, clear cups, bowls, or beakers, tablespoon measures, plastic spoons or stir sticks, *Table 1: Observing and Identifying Physical Property Changes* and Reaction Cards; *optional:* powdered lemonade mix, heating pad, thermometer

### Procedure:

**Activity 1 BUBBLES:** Open a can or bottle of soda and pour into a cup. Let the student see, hear, and feel the bubbles. Ask the student which senses they used to see, hear, and/or feel the bubbles. Explain that the bubbles are a physical property and place the BUBBLES card or object next to the cup.

**Activity 2 TEMPERATURE CHANGE:** The important concept to focus on is the change in temperature of a substance, not that the substance is already hot or cold. It is important to use two examples; one that demonstrates that a substance becomes warmer and one in which a substance becomes cooler over time. Ask the student to use their senses to identify the changes. For example, a heating pad increases from room temperature to hot; a chemical ice pack begins at room temperature and then becomes colder; an ice cube added to room-temperature water causes the water to become colder. Ask the student which senses they used to see, hear, and/or feel the temperature change. Explain that the temperature change is a physical property change and place the TEMPERATURE CHANGE card or object next to the cup. Teachers may also say something similar to: “when the cup gets hotter/colder, that means the temperature is changing. When the cup gets hotter/colder, that is a physical property change.”

**NOTE:** For students who are able to read a thermometer, please use one as you conduct this activity so they can observe the change (increase and decrease) in temperature. They do not need to record the change in degrees.

**NOTE: Do not use substances that are extremely hot or cold as this may cause injury to you and/or the student.**

**Activity 3 COLOR CHANGE:** Using a clear cup or glass filled with water, add a few drops of yellow food coloring to the water and stir. Then add a few drops of blue food coloring. The color should turn to green. Ask the student which senses they used to see, hear, and/or feel the color change. Explain that there was a change in the color of the water from yellow to green. Place the COLOR CHANGE card next to the cup or glass.

**Activity 4 DISSOLVING:** Combine a spoon full of sugar into a small cup of warm water and stir. Have the student put their hands (if they are able) into the water to feel if there is any sugar left. Ask the student which senses they used to see, hear, and/or feel if any sugar was left. Explain that the sugar broke up into pieces so tiny that they cannot be seen in the water. This is the physical property change of dissolving. Place the DISSOLVING card next to the cup.

- Real-world application ideas: Other options for demonstrating dissolving would include mixing a drink powder with water such as lemonade, Kool-Aid, or hot chocolate.

**Assessment Task 1:** When ready, use the following instructions to assess the student.

- The teacher should conduct each of the activities in a different order than was instructed.
- For each activity, ask the student to identify the physical property change and ask the student to identify the sense(s) they used to identify each property change.
- For each activity have the student select a Reaction Card. The teacher should record which reaction card the student selected on *Table 1: Observing and Identifying Physical Property Changes* below.
- After the student selects a reaction card, have the student indicate which sense(s) they used to observe the physical property change and record on the chart below. The teacher may also upload a photo of the Reaction Card that the student selected for each activity.

**NOTE:** If a student is unable to use one of their senses to identify the physical property change for a specific activity, omit the activity that requires use of that sense from the assessment. For example, if a student is blind, omit the color change activity.

<b>Table 1: Observing and Identifying Physical Property Changes</b>		
<b>Name of Activity</b> (BUBBLES, COLOR CHANGE, TEMPERATURE CHANGE, DISSOLVING)	<b>Physical Property Change</b> (Reaction Card)	<b>Sense(s) Used</b> (see, hear, feel)
Activity 1:		
Activity 2:		
Activity 3:		
Activity 4:		

**Answer Key:**

- DISSOLVE: Dissolve card and see and/or feel (touch)
- COLOR: Color Change card and See
- TEMPERATURE CHANGE: Temperature Change card and Feel (touch) or see the change in the thermometer reading.
- BUBBLES: Bubbles Card and Hear, See, and/or Feel (touch)

**Rubric: Observing and Identifying Physical Property Changes**

- 1 point:** Student identifies one correct physical property only.
- 2 points:** Student correctly identifies both the physical property change AND the correct sense used for one activity or student identifies two correct physical property changes for two activities but does not identify the correct senses for either of those activities.
- 3 points:** Student correctly identifies both the physical changes AND the correct senses used for two activities or student identifies the correct physical property changes for three or more activities but does not identify the correct senses for all of those activities.
- 4 points:** Student correctly identifies both the physical changes AND the correct senses for three activities.

## Session 2: No Change in Physical Properties

**OBJECTIVE:** Students will use their senses to recognize when the physical properties of a substance stay the same when mixed with another substance.

### Instructional Notes:

- In this Session, students will use their senses to observe that there is no change in the physical properties of a substance. This absence of change means that the substances, when mixed, did not change in their physical properties. For example, when sand is mixed with water, it does not dissolve, change color, form bubbles or change temperature. Students will be able to feel or see that the sand is unchanged (the sand becoming saturated with water does not indicate a change in its physical property).
- The focus for this session is for students to recognize that there is an absence of the four changes—color change, temperature change, bubbles, dissolving—they have learned about in Session 1. They will learn this concept through a process of elimination.
- When observing this activity, explain that the physical properties of the substance “stayed the same”. It is not scientifically accurate to use the phrase “unchanged” because the sand becomes wet and in that sense changes. However, there is no physical property change in the sand itself, unlike sugar which does undergo a physical property change when it dissolves in water.

**Materials:** sand, water, oil, sugar, clear cups, bowls, or beakers, tablespoon measures, plastic spoons or stir sticks, *Table 2: No Change in Physical Properties* and Reaction Cards

### Procedure:

**Step 1:** Using a clear cup or glass of water, add sand to the water and stir. Have the students look at the mixture and put their hand in the cup to feel the sand. Ask:

- Do you see a color change?
- Do you see or feel bubbles?
- Do you see dissolving of the sand?
- Do you feel sand in the water?
- Do you feel a change in temperature? Or did it get colder or did it get warmer?
- Did the sand and water stay the same?

**Step 2:** Repeat Step 1 with the following mixtures:

- Oil and water (use equal parts of sand and sugar)
- Sand and sugar (use equal parts of sand and sugar)

**Assessment Task 2:** When ready, use the following instructions to assess the student:

- Choose two of the three mixtures above and repeat the procedure in Step 1 above.
- For each mixture, after mixing the two substances, ask the student to use the Reaction Cards to identify whether each of the changes in the table occurred or did not occur.
- Record their answers in the table below.
- Ask the student if the substances stayed the same and record their answer (yes/no).

<b>Table 2: No Physical Properties Change</b>					
Mixture (name of two substances mixed)	Color change? Yes/No	Bubbles? Yes/No	Dissolving? Yes/No	Temperature change? Yes/No	Did the substances stay the same? Yes/No
Mixture 1:					
Mixture 2:					

**Answer Key:**

- Sand and water—no in all 5 columns
- Oil and water—no in all 5 columns
- Sand and sugar—no in all 5 columns

**Rubric: No Change in Physical Properties**

- 0 points:** Student indicates that there is a physical property change of any kind or that the substances did not stay the same for both mixtures
- 1 point:** Student correctly indicates that there are no physical property changes and the substances stayed the same for only one of the mixtures
- 2 points:** Student correctly indicates that there are no physical property changes and the substances stayed the same for both of the mixtures

### Session 3: Planning and Carrying Out an Investigation

OBJECTIVE 1: Students will understand that when the physical properties of substances change, when combined with other substances, it means that a new substance has been formed.

OBJECTIVE 2: Students will be able to collaboratively plan the steps of an investigation to test whether a new substance is formed when two substances are mixed together.

#### Instructional Notes:

- Explain to the students the physical property changes they observed in previous sessions all signal that a new substance was produced. For example, the bubbles indicate that a gas was formed and dissolving indicates that one substance combined with another to create something new. If needed, teachers should reinstruct, review, and/or remind students of the physical changes they learned about in sessions 1-2 before continuing with session 3.
- Explain to the students that they will plan the steps of an investigation with you to determine if a new substance is formed when two substances are mixed together.

**Materials:** see Step 1 below

#### Procedure:

- Cut apart the Investigation Planning Cards at the back of this document.
- Using the sand and water the teacher will demonstrate the steps of the procedure and use the cards to label each step.
- **NOTE:** teachers must use sand and water so students are not distracted by any physical property changes. The focus of instruction should be the steps of the procedure that they will use to plan and conduct their own investigation.

#### Step 1: Gather the materials and tools for the investigation

- Sand and water
- Tablespoon measure
- 1 C (8 oz) measuring cup
- Clear cups, bowls, or beakers
- Stirring stick
- Tray
- Safety goggles (one pair for each student involved and one pair for the teacher)
- Data Table

#### Step 2: Measure each substance

- Measure 8 oz of water and pour into a clear cup, bowl, or beaker.
- Measure 2 tablespoons of sand and place into a separate cup or bowl.

#### Step 3: Mix the substances together

- Add the sand to the cup with water and stir.

#### Step 4: Use your senses to observe any changes that happen.

#### Step 5: Record your observations in the Data Table.

- What did you see, hear, feel? Use the reaction cards if necessary.

**Assessment Task 3:** When ready, follow the instructions below for assessing the student on planning an investigation.

- Using all five of the Investigation Planning Cards, place them out of order in front of the student and ask the student to rearrange them to show the correct sequence of steps they would take to conduct an investigation.
- If a student needs prompting, it is acceptable to say “what step do you think comes next?” or “do you remember what we did next when we mixed the sand and water?” The teacher cannot hint at the next step in the procedure but can prompt the student to look at the cards.

<b>Rubric: Planning the Investigation</b>	
<b>Score Point</b>	<b>Description</b>
2	Student correctly places all five steps in the correct order.
1	Student places two or three adjacent steps in the correct order. For example, step 1 and step 2 are in the correct order but the rest are out of order.
0	No steps are in the correct order or one step in the correct sequence.

**Answer Key:**

- Step 1: Gather the materials and tools for the investigation
- Step 2: Measure each substance
- Step 3: Mix the substances together
- Step 4: Use your senses to observe any changes that happen.
- Step 5: Record your observations in the Data Table.

## Session 4: Carrying out the Investigation and Analyzing and Interpreting Results

OBJECTIVE 1: Students will carry out the steps of the investigation with different pairs of substances to identify if there was a property change and if a new substance was formed.

OBJECTIVE 2: Students will be able to use the data from their investigations to determine if a new substance has been formed.

**Materials:** clear cups, bowls, or beakers, tablespoon measures, plastic spoons or stir sticks, goggles, substances being used for each of the reactions, *Table 3: Carrying out the Investigation and Analyzing and Interpreting Results* and *Data Table 4: Carrying out the Investigation and Analyzing and Interpreting Results*

**Instructional Note:** The complete list of investigations in the Student Response Table can also be used during instruction as many times as is necessary for students to understand how to plan and carry out an investigation and to analyze and interpret the results.

### Procedure:

- For each of the two mixtures in Table 3 (sand and water, baking soda and vinegar), have the student conduct steps 1-5 of the investigation and record their observations in the table below. The student may use the planning cards and the reaction cards if needed. The student should be allowed to conduct the steps independently as possible or they can direct the teacher on what to do.
- Based on their observations, for each mixture, the student will identify if there was a property change and if a new substance was formed when the baking soda and vinegar were mixed in the table below.

<b>Data Table 3: Carrying Out the Investigation and Analyzing and Interpreting Results</b>			
<b>Mixtures</b>	<b>Observations: <i>Did you see, hear, feel, or smell anything?</i></b>	<b>Was there a Property Change?</b>	<b>Was a new substance formed?</b>
Sand and water			
Baking soda and vinegar			

**Assessment Task 4:** When ready, follow the instructions below to assess the student.

- Conduct at least four of the investigations below with the student. Make sure that at least one of the mixtures does not lead to any physical properties changes (see Student Sample Response Table)
- Have students (or teacher) record their observations and determine if a physical property change occurred and if a new substance was formed in Date *Table 4: Carrying out the Investigation and Analyzing and Interpreting Results*
- Students should be encouraged to do as much of each investigation as possible. If a student needs prompting, it is acceptable to say “what step do you think comes next?” or “do you remember what we did next when we mixed the sand and water?” The teacher cannot hint at the next step in the procedure but can prompt the student to look at the cards. They can also have the student place the cards in order for a visual reference before beginning the investigation.
- If a student has a visual, hearing, or sensory impairment, omit the investigations that rely on those senses to identify the physical change. For example, if a student is blind, omit the cornstarch and iodine investigation because the physical property change is color change.

**Table 4: Carrying out the Investigation and Analyzing and Interpreting Results**

Student Name: \_\_\_\_\_

<b>Mixture</b>	<b>Observations: <i>Did you see, hear, feel, or smell anything?</i></b>	<b>Was there a Property Change?</b>	<b>Was a new substance formed?</b>
sand and water			
oil and vinegar			
sand and oil			
water and iodine			
sugar and water			
baking soda and vinegar			
starch solution and iodine			
sugar and vinegar			
hydrogen peroxide and yeast			

**Student Data Table Sample Student Responses**

<b>Mixture</b>	<b>Observations: <i>Did you see, hear, feel, or smell anything?</i></b>	<b>Was there a Property Change?</b>	<b>Was a new substance formed?</b>
sand and water	I felt the sand in the water; I saw the sand in the water.	It did not dissolve, bubble, or turn a different color.	No. the sand and water stayed the same.
oil and vinegar	I saw the oil and vinegar stay separate/apart; I saw and felt that they looked the same	It did not dissolve, bubble, or turn a different color.	No. the oil and vinegar stayed the same.
sand and oil	I felt the sand in the oil; I saw the sand in the oil	It did not dissolve, bubble, or turn a different color.	No. the sand and oil stayed the same.
water and iodine	I saw the iodine stay brown when the water was added	It did not dissolve, bubble, or turn a different color.	No. the sand and oil stayed the same.
sugar and water	I saw the sugar disappear in water. I felt that the sugar was gone.	Yes. The sugar dissolved into the water.	Yes
baking soda and vinegar	I heard, saw, felt the bubbles that formed.	Yes. Bubbles formed.	Yes
starch solution and iodine	I saw the color change from white to blue; I saw the color change.	Yes. The cornstarch and iodine turned blue.	Yes
sugar and vinegar	I saw the sugar disappear in vinegar. I felt that the sugar was gone.	Yes. The sugar dissolved into the water.	Yes
hydrogen peroxide and yeast	I felt heat and/or saw bubbles form. I saw the temperature on the thermometer go up	Yes. I saw the bubble and/or heat but did not see a color change.	Yes

**Rubrics:** Score the student’s Data Sheet using the completed chart above. Then use the rubrics below to find the score for each column.

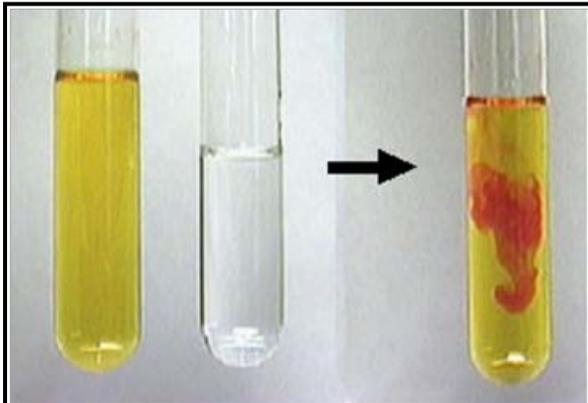
<b>Rubric: Observations</b>	
<b>Score Point</b>	<b>Description</b>
4	Student correctly made four or more types of observations according to the chart above: bubbles/fizzing, no change, color change, dissolving or heat.
3	Student correctly made three types of observations according to the chart above: bubbles/fizzing, color change, dissolving, or heat.
2	Student correctly made two types of observations according to the chart above: bubbles/fizzing, color change, dissolving, or heat.
1	Student correctly made one type of observation according to the chart above: bubbles/fizzing, color change, dissolving, or heat.
0	No observations or observations are incorrect.

<b>Rubric: Property Change</b>	
<b>Score Point</b>	<b>Description</b>
4	Student correctly indicates whether or not it was a property change according to the chart above for four or more investigations.
3	Student correctly indicates whether or not it was a property change according to the chart above for three correct investigations.
2	Student correctly indicates whether or not it was a property change according to the chart above for two correct investigations.
1	Student correctly indicates whether or not it was a property change according to the chart above for one correct investigations.
0	No response or responses are incorrect.

<b>Rubric: New Substance</b>	
<b>Score Point</b>	<b>Description</b>
4	Student correctly indicates whether or not a new substance was formed according to the chart above for four or more correct investigations.
3	Student correctly indicates whether or not a new substance was formed according to the chart above for three correct investigations.
2	Student correctly indicates whether or not a new substance was formed according to the chart above for two correct investigations.
1	Student correctly indicates whether or not a new substance was formed according to the chart above for one correct investigations.
0	No response or responses are incorrect.

## Appendix A: Reaction Cards

NOTE: Reaction Cards not complete. We would like “stayed the same” cards that would be the card for a physical property change that has an “x” across the card to indicate no reaction or that the substances “stayed the same”.



**Color Change**



**Dissolving**



**Bubbles**



**Heat**

## Appendix B: Investigation Planning Cards

**NOTE:** Planning cards are not complete. We are envisioning color photos of each step, similar to what is below. Each card will have the step printed below the picture. Cards should be reproducible in black and white and as line drawings.



**Gather the materials and tools for the investigation.**

**Measure each substance.**



**Mix the substances together.**

**Use your senses to observe any changes that happen.**

**Record your observations in the Data Table.**

## Appendix C: Task Materials Checklist

The materials listed below are required in order to administer this task. Minimum amounts are listed. For instructional purposes, teachers may need more of the substances listed if they plan on instructing the student multiple times using the same investigation. For example, the physical change caused by combining vinegar and baking soda may be particularly exciting and engaging for some students so teachers may want to repeat that investigation several times as a way to teach the concepts in this task. If so, teachers may need more than the minimum amounts of materials listed below.

- Safety glasses for students and teacher
- 2 sandwich-sized plastic zipper bags, each containing 30 mL of the following:
  - Cornstarch solution (mixed with water) or starch solution (can be purchased)
  - sugar
  - baking soda
  - sand
- 1 small packet of yeast
- 8 oz of each of the following (be sure to clearly label each substance):
  - tap water,
  - vinegar,
  - hydrogen peroxide
- 4 oz of iodine solution
- 1 eye dropper for the iodine solution
- 16 clear cups, bowls, or beakers for measuring each substance into before combining and mixing.
- 8 Tablespoon measures
- 8 clear cups, bowls, or beakers for combining substances (minimum of 1 cup)
- Paper towels
- 8 plastic spoons or stir sticks for mixing
- printed “Student Data Table”

Rhode Island Department of Education

NGSS Alternate Assessment

Sample Performance Task

**Grade 5**

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*Ecosystems: Food Chains and Food Webs*

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# Introduction

This performance task for the NGSS Alternate Assessment is designed as both an instructional unit with formative assessment components and as a summative assessment for students taking the alternate assessment. Teachers can and should use this task as often as is necessary for students to learn the essential concepts and standards covered in this task.

This task is aligned to the Next Generation Science Standards (NGSS) and incorporates the three dimensions that, when combined appropriately, create meaningful and relevant learning opportunities for students. It is important that *all* students have access to science experiences to broaden their understanding of the world we live in.

This task was designed to introduce and build on the essential elements in the NGSS Performance Expectations used to create this task. That essential knowledge and skills are then gradually built upon in subsequent sessions until the students reach the intent of the grade level standard. It is important to keep in mind that this task was designed using lessons in which the core ideas have been simplified using modified materials and experiments that are amenable to students with various cognitive and physical challenges. While the concepts in this task remain true to the NGSS standards, this task does not embrace the full depth of complexity or rigor expected in a general education science classroom.

## Next Generation Science Standards

The *Framework for K-12 Science Education (NRC, 2012)* provided the foundation for the development of the Next Generation Science Standards. The NGSS are written as performance expectations that integrate three dimensions. These dimensions include Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts. Together, these three dimensions create rich science experiences that focus students less on the science content and more on the skills and abilities necessary to think and interact with the world in a scientific way. Below are the Performance Expectations and the three dimensions to which this task is aligned.

Students who demonstrate understanding can:

- 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.** [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 models and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"><li>Develop a model to describe phenomena.</li></ul> <p>-----</p> <p><b>Connections to the Nature of Science</b></p> <p><b>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</b></p> <ul style="list-style-type: none"><li>Science explanations describe the mechanisms for natural events.</li></ul>	<p><b>LS2.A: Interdependent Relationships in Ecosystems</b></p> <ul style="list-style-type: none"><li>The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem.</li></ul> <p><b>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</b></p> <ul style="list-style-type: none"><li>Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.</li></ul>	<p><b>Systems and System Models</b></p> <ul style="list-style-type: none"><li>A system can be described in terms of its components and their interactions.</li></ul>

Students who demonstrate understanding can:

- 5-PS3-1. Use models to describe that that energy in animals’ food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.** [Clarification Statement: Examples of models could include diagrams, and flow charts.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"><li>Use models to describe phenomena.</li></ul>	<p><b>PS3.D: Energy in Chemical Processes and Everyday Life</b></p> <ul style="list-style-type: none"><li>The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water).</li></ul> <p><b>LS1.C: Organization for Matter and Energy Flow in Organisms</b></p> <ul style="list-style-type: none"><li>Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary)</li></ul>	<p><b>Energy and Matter</b></p> <ul style="list-style-type: none"><li>Energy can be transferred in various ways and between objects.</li></ul>

## Task Description

Food chains and webs assess students' skills in developing and using models to describe the movement of energy from the sun to plants and from one organism to another. Students learn about interdependent relationships in ecosystems in which organisms are related in food chains and food webs. They will learn and demonstrate their understanding of how plants derive their energy from the sun, that herbivores eat plants, omnivores eat both plants and animals, and carnivores eat other animals for their energy. They will also explore how a change in the population of one organism can impact the survival of others in the food chain or web.

## Timing and Scheduling

This task is divided into six sessions. There are no time constraints for this task and sessions can be divided into smaller lessons as student needs require. Pacing should be adjusted based on individual student abilities and lessons should be repeated based on student need.

## Session Descriptions

This task was designed to begin at a basic level and progress toward more complex concepts and are designed to be repeated as often as necessary. For this reason, the order of the tasks should not be changed or swapped. The goal of this task is for students to progress through all of the sessions. If a session needs to be broken into smaller components for a student, that is acceptable.

### **Session 1: Organisms and Energy**

OBJECTIVE 1: Students will understand that all organisms need a source of energy to live and grow.  
OBJECTIVE 2: Students will understand that organisms get their energy from a variety of sources. Students will be able to categorize organisms based on their source of energy (*plants, carnivore, herbivore, and omnivore*).

### **Session 2: Energy from the Sun**

OBJECTIVE: The food of almost any kind of animal can be traced back to plants. The energy released from food was once energy from the sun that was captured by plants.

### **Session 3: Food Chains**

OBJECTIVE: Students will develop a model to describe the flow of energy through a food chain.

### **Session 4: Food Webs**

OBJECTIVE 1: Students will understand that organisms can get their energy from more than one source.  
OBJECTIVE 2: Students will develop a model to describe the flow of energy through a food web.

### **Session 5: Environmental Change**

OBJECTIVE 1: *Students will be able to identify three ways in which the energy needs of organisms can be impacted by changes in the environment.*  
OBJECTIVE 2: *Students will understand that organisms can survive only in environments in which their particular energy needs are met. When organisms lose their source of energy, they will either die or move to another environment to find their energy source(s).*

### **Session 6: Energy Sources and Environmental Change**

OBJECTIVE: *Students will develop a model to describe how the availability of energy sources for one organism impacts other organisms in the environment.*

## Accommodations and Allowable Supports

As teachers read through the task and prepare to instruct students, there are many ways that this task can be adjusted and accommodations made for students with a variety of physical and cognitive challenges. The following supports are allowable for this task during instruction and assessment portions:

**Organism Cards:** The animal cards included in the Appendix of this task are color photos of animals that include important information on each animal that students will need to be aware of as they work on this task. These cards can be adjusted in the following ways: enlarged for students with visual impairments and printed in black and white if that is preferable for the student. ***These cards cannot be reproduced or redone using clipart or cartoon representations of animals.***

- **Objects:** If students require objects such as plastic animals, that is acceptable as long as they are accurate representations of the animals found in the appendix. Plastic, cartoon-like animals are not acceptable. There are examples of acceptable objects included in the appendix.
- **Symbols:** Information on the cards can be transcribed into Meyer-Johnson symbols or tactile graphics. None of the information on the cards may be simplified or changed and must be transcribed exactly as presented on the cards.

**Scripts/questions teachers ask students:** The questions teachers ask students are suggestions only and can be used “as is” or modified depending on student needs and their understanding of the vocabulary contained in this task. This task is designed as an instructional unit so repeating essential vocabulary and concepts is acceptable and encouraged.

**Vocabulary:** There is a word list with definitions included in this task. These definitions are for teachers to use as they adapt this task for the needs of the students in their classrooms. Acceptable and scientifically-accurate phrases and concepts are included in the definitions that teachers can use. It is important that these phrases and concepts are used during instruction. If there are common misunderstandings, those are noted so teachers can avoid using them.

**Communication:** Students should have a communication system that they can initiate on their own. Object replacement, ASL, AAC, etc., are all acceptable. Hand-over-hand and other physical prompts are not allowable on the summative assessment portions of this task.

## Assessment Rubrics

Teachers may use the rubrics during instruction as formative assessment as well as during the summative assessment. Examples of score points are examples only. Correct sequences for food chains and food webs will depend on the food chains and food webs selected by the teacher.

**NOTES:** The teacher will upload a picture of the student work for each item in addition to entering the student’s rubric score.

## Teacher Guidance in Task Administration

The following pages are designed to provide guidance to the teacher in the administration of the task.

There is no prescribed script for this task. The Instructional Notes for each session include examples of what the teacher should do at a given point in the task. Aside from listed vocabulary, teachers should feel confident to use words, pictures, photographs, and symbols that the student is comfortable and familiar with as long as they adhere to the guidelines found in the section *Accommodations and Allowable Supports*.

This task is designed as a series of assessment tasks but should be viewed as instruction by the student. Teacher interaction with the students during this task should be the same as a normal instructional setting.

## Materials Needed for this Task

- Organism Cards found in Appendix A or objects of organisms.  
<http://betterlesson.com/lesson/632179/yellowstone-national-park-food-chains>
- Environmental Change Cards found in Appendix B or objects representing each environmental change.
- List of Food Chains and Food Webs found in Appendix C
- One Sorting Placemat, page 9
- One Food Chain Placemat printed on 8.5 x 11 paper (or larger) in Appendix D.
- One Food Web Placemat printed on 8.5 x 11 paper (or larger) in Appendix E.
- Energy Arrows for students not using the placemats

## Session 1: Organisms and Energy

OBJECTIVE 1: Students will understand that all organisms need a source of energy to live and grow.

OBJECTIVE 2: Students will understand that organisms get their energy from a variety of sources. Students will be able to categorize organisms based on their source of energy (*plants, carnivore, herbivore, and omnivore*).

### Instructional Notes:

**Water:** It is important to understand that while water is also vital to every living thing for survival, water is not a source of energy for organisms. Water is not included in this task for this reason.

Teach the following vocabulary using the notes below.

- **Energy:** what an organism consumes or eats to stay alive. Example; batteries provide energy to some toys to give it power to work. Without the battery, the toy doesn't work. This may help students understand that living things need power (energy) to work and living things get their power from different things.
- **Organism:** a living thing.
- **Plants:** organisms that use the sun to make their energy (or food). Sunlight is essential for photosynthesis. The following organisms are plants: green algae, aspen tree, lodgepole pine, wheatgrass, gray willow.
- **Carnivore:** an organism that gets its energy *only* by consuming other animals. The following organisms are carnivores: bald eagle, coyote, rattlesnake, red-tailed hawk, osprey
- **Herbivore:** an organism that gets its energy *only* by consuming plants. The following organisms are herbivores: cottontail rabbit, antelope, deer, bighorn sheep, bison, elk, gray squirrel.
- **Omnivore:** an organism that gets its energy by consuming *both plants and animals*. The following organisms are omnivores: red fox, deer mouse, willow flycatcher, cutthroat trout.

**Assessment Instructions:** When ready, use the following instructions to assess the student.

1. Give the student the organism cards in random order and ask the student to place each card in the appropriate category on the sorting placemat. Do not prompt or cue the student. Questions such as "Where does that plant/animal get its energy?" are acceptable.
2. Use the rubric below to score the student response.

### Rubric: Sorting Organisms

**0 points:** No organisms in correct category

**1 point:** One or more organisms in one correct category

**2 points:** Two organisms in two different correct categories or two organisms in one correct category. *Example: Trout and red fox in omnivore category; mayfly in herbivore and coyote in carnivore categories.*

**3 points:** Three organisms in three correct categories or two organisms in the same correct category and one in the correct category. *Example: Red fox in omnivore category; mayfly in herbivore, and coyote in carnivore categories or trout and red fox in omnivore category and grass in plant category.*

**4 points:** Four organisms in each correct category. *Example: grass in plant category, red fox in omnivore category, mayfly in herbivore, coyote in carnivore category.*

Sorting Placemat

**Plant**



**Herbivore**



**Omnivore**



**Carnivore**



Place plant cards here

Place herbivore cards here

Place omnivore cards here

Place carnivore cards here

## Session 2: Energy from the Sun

OBJECTIVE 1: The food of almost any kind of animal can be traced back to plants. The energy released from food was once energy from the sun that was captured by plants.

### Instructional Notes:

- Energy Arrows: The arrows on the Food Chain Placemat represent where the energy for that organism comes from (what it “eats”). It is important that students understand that the sun is always the first source of energy.
- An arrow from the sun to the plant indicates that energy from the sun is captured and used by the plant. Teachers can lengthen this session by focusing on photosynthesis and/or growing seedlings in a sunny spot in the classroom to reinforce this concept.

**Assessment instructions:** When ready, use the following instructions to assess the student.

- Give the student sun card and plant cards and ask the student to place each card in the appropriate category on the Food Chain Placemat. Asking questions such as “What is the first source of energy?”, “What does this arrow mean?”, and “Where does that plant get its energy?” are acceptable.
  - If not using the Food Chain Placemat, student should use Energy Arrows in between the sun and plants.
- Use the rubric below to score the student response.

### Rubric: Energy from the Sun

**0 points:** Sun and plant cards not in proper sequence or either card is omitted.

**1 point:** sun in proper sequence

**2 points:** sun and one plant card in proper sequence

**3 points:** sun and two or more plant cards in proper sequence

## Session 3: Food Chains

**OBJECTIVE:** Students will develop a food chain model to describe the flow of energy through a food chain.

### **Instructional Notes:**

- Organism Cards: Use the Sun, all plant cards, and any of the food chains Appendix C.
- Using the selected organism cards and the Food Chain Placemat, show students how to create food chains starting with the simple food chain from Session 2 (sun, then plant) and then adding the correct organism cards to complete the chain. Make sure that the food chain has the organisms in the correct order as shown in Appendix C. Teachers may use as many of the food chains as is acceptable for the student.
- Flow of energy: It is important that students understand that energy is transferred from the sun to plants, from plants to other organisms, and from one organism to another. Reinforce the concept that when one organism eats another for food, energy is transferred.

**Note:** We want an example that illustrates what a completed food chain looks like using the organism cards.



**Assessment Instructions:** When ready, use the following instructions to assess the student.

- Give the student the sun card and organism cards for either Food Chain 3 or Food Chain 4. Ask the student to place each card in the appropriate category on the Food Chain Placemat in Appendix C. Do not prompt or cue the student. Questions such as “What is the first source of energy?”, “What does this arrow mean?”, and “Where does that plant/animal get its energy?” are acceptable.
- If not using the Food Chain Placemat, student should use Energy Arrows in between the sun and organisms.
- After the student has completed the food chain, use the rubric on the following page to determine the student’s score. In general, most students should be able to complete the task within the class period. If the student wishes to continue working, please allow them to do so. If the student is no longer engaged or is frustrated, stop the task and continue at a time when the student is more engaged.

### Rubric 3. Food Chains

Examples of score points are examples only. Correct sequences for food chains and food webs will depend on the food chains and food webs selected by the teacher.

**0 points:** no organisms in proper sequence

**1 point:** sun only in proper sequence

SUN→ or SUN→ rabbit →grass

**2 points:** sun and one plant card in proper sequence or two organism cards in proper sequence

SUN→grass

**3 points:** sun and two organism cards in proper sequence.

SUN→grass→rabbit

**4 points:** sun and all organism cards in proper sequence.

## Session 4: Food Webs

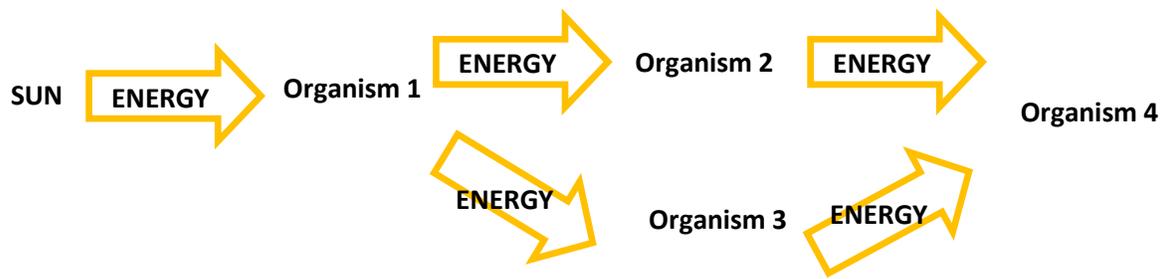
OBJECTIVE 1: Students will understand that organisms can get their energy from more than one source.

OBJECTIVE 2: Students will develop a food web model to describe the flow of energy through a food web.

### Instructional Notes:

- Organism Cards: Use any of the food webs in Appendix C.
- Energy Arrows: Cut out enough Energy Arrows for the food web(s) selected from Appendix C.
- Each food chain in Appendix C has a corresponding food web that should be used for this session. Using the selected organism cards and the Energy Arrows, show students how to create a food web from the corresponding food chain from Session 3. Add the correct organism cards to complete the web. Make sure that the food web has the organisms in the correct order and the energy arrows are in the correct places. The energy arrows must also point in the correct directions to indicate the flow of energy from one organism to another. Teachers may use as many of the food webs as is acceptable for the student.
- Flow of energy: It is important that students understand that energy is transferred from the sun to plants, from plants to other organisms, and from one organism to another. Reinforce the concept that when one organism eats another for food, energy is transferred and organisms can have more than one energy source.

**Note:** We want an example that illustrates what the corresponding food web looks like using the organism cards.



**Assessment Instructions:** When ready, use the following instructions to assess the student.

- Give the student the sun card and organism cards for either Food Web 2 or Food Web 3. Ask the student to place each card in the appropriate category on the Food Web Placemat in Appendix D. Do not prompt or cue the student. Questions such as “What is the first source of energy?”, “What does this arrow mean?”, and “Where does that plant/animal get its energy?” are acceptable.
- If not using the Food Web Placemat, student should use Energy Arrows in between the sun and organisms.
- After the student has completed the food web, use the rubric on the following page to score the student response. In general, most students should be able to complete the task within a class period. If the student wishes to continue working, please allow them to do so. If the student is no longer engaged or is frustrated, stop the task and continue at a different time.

**Rubric: Food Webs:** Examples of score points are examples only. Correct sequences for food chains and food webs will depend on the food chains and food webs selected by the teacher.

**0 points:** no organisms in proper sequence or the sun is not in the first position.

**1 point:** student places sun in proper sequence.

**2 points:** student places sun and plant in proper sequence,

**3 points:** student places sun, plant, and 1 herbivore or 1 carnivore in proper sequence;

**4 points:** student places sun, plant, 1 herbivore or 1 carnivore in proper sequence, and adds 1 additional organism in proper sequence;

**5 points:** student places sun, plant and all organisms in the selected food web in the proper sequence.

## Session 5: Environmental Change

OBJECTIVE 1: *Students will be able to identify three ways in which the energy needs of organisms can be impacted by changes in the environment.*

OBJECTIVE 2: *Students will understand that organisms can survive only in environments in which their particular energy needs are met. When organisms lose their source of energy, they will either die or move to another environment to find their energy source(s).*

### Instructional Notes:

- Three ways in which environments can be significantly impacted are: fire, flood, and drought.
  - **Wildfire:** these are fires in open, wild areas; not cities or towns
  - **Flood:** An overflow of water from lakes and rivers due either to above-average rainfall or snow melt. Flooding in this context is not part of the normal cycle of the river or lake but causes damage to the surrounding land.
  - **Drought:** When there is little to no water in the ground for a longer than usual amount of time. For example, if an area receives daily afternoon rain showers and then for a period of a month, receives no rain, this may be considered a drought because the area is not receiving the amount of water it normally does.
- Students need to understand how each of these three events affect the environment and the sources of energy in the environment:
  - Wildfire: burns grasses, trees, and other plants that animals use for energy
  - Flood: washes away trees and grasses which are sources of energy for many animals.
  - Drought: Without water plants may die or not produce seeds or fruit that animals need for their energy. Animals that depend on the leaves, seeds, and fruit from plants, these animals will leave to search for a new environment.
- Review energy sources of organisms for selected food chains and webs. For example, rabbits eat grass and shrubs, trout eat mayflies and algae, etc. It is important that students understand that organisms cannot live without their energy source(s).
- If the energy sources are reduced or removed, then the organisms will either die or move to another area to find their energy source(s).
- **Note:** Teachers in the focus group suggested a short booklet with a scenario about a group of rabbits that live in an area affected by wildfire. They said this would be a very good way to help students understand how organisms react to environmental change. We would like to include multiple scenarios with different organisms and different environmental changes.

**Assessment Instructions:** Use the following instructions to assess the student.

- Show the student one of the environmental change cards (fire, drought, flood) and ask:
  - “How do the effects of drought/fire/flood on the environment affect the sources of energy for the organisms in that environment?” or “What happens to the plant (*use plant from food chain*) for the rabbits (*herbivore in selected food chain*)?”
    - **0 points:** No response or incorrect response
    - **1 point** each per answer for fire, flood, drought: The fire burns the grass/plant. The flood washes away/drowns the grass/plant. The drought kills the grass/plant.
  - “What happens when the grass is burned by the fire?”
    - **0 points:** No response or incorrect response
    - **1 point:** That the herbivore can’t eat the grass for energy or that the herbivore won’t have any food for energy.

- **2 points:** Student indicates that the herbivore can't eat the grass for energy or that the herbivore won't have any food for energy.
  - "What happens when the stream/lake is flooded?"
    - **0 points:** No response or incorrect response
    - **1 point:** Student indicates that the herbivore can't eat the grass for energy or won't have any food for energy.
    - **2 points:** Student indicates that the herbivore can't eat the grass for energy or that the herbivore won't have any food for energy.
- Ask the student to describe how that event affects the environment and the sources of energy in that environment using the following questions.
  - "How are the sources of energy affected by the fire/flood/drought?"
    - **0 points:** No response or incorrect response
    - **1 point:** Student indicates that the energy/food for an organism is damaged/destroyed/died.
    - **2 points:** Student indicates that the energy/food for an organism is burned, washed away, or wilted. Student answer is specific to the environmental change (fire, flood, drought).
  - "How will the rabbits get their energy when the grass is gone?"
    - **0 points:** No response or incorrect response
    - **1 point:** Student indicates that the herbivores will have to move somewhere else to find food or indicates another source of energy for the herbivores.
  - "How will the coyotes get their energy when the rabbits leave?"
    - **0 points:** No response or incorrect response
    - **1 point:** Student indicates that the carnivores will have to move somewhere else to find food or indicates another source of energy for the coyotes.

## Session 6: Energy Sources and Environmental Change

**OBJECTIVE 1:** Students will develop a model to describe how the availability of energy sources for one organism impacts other organisms in the environment.

### **Instructional Notes:**

Using Food Web 2, review concepts from previous sessions. Specifically:

- How organisms are dependent on each other for their energy sources. Remind students of what the energy arrows mean.
- Organisms can get their energy from more than one source.
- When one organism loses its source of energy, other organisms that depend on it will also lose a source of energy.
- Review and practice scenarios with the food web on how fire, flood, and drought affect sources of energy for organisms. Have students identify how the change will affect the environment, which organisms will lose their sources of energy, how other organisms in the food web are then affected. How will the other organisms find new sources of energy.

**Assessment:** Using Food Web 2, present the following scenario to the student using your own words. Use the organism cards and the environmental change cards as appropriate to illustrate the scenario.

**Scenario:** The cottontail rabbits and the deer mice live in a place that has a lot of grass that they can eat. The cottontail rabbits and deer mice are energy for the red foxes that live there. The bald eagles also get their energy from the cottontail rabbits and deer mice.

One day, a fire started in the woods. It grew and spread over the forest. All the grass burned.

Ask the students the following questions. You can ask verbally using the cards in the food web or print the assessment items below and give to the student. Do not change the wording or answer options in any way. Make sure the student knows that there can be more than one correct answer.

1. Which animals lost their source of energy when the grass burned?
  - a. Cottontail Rabbits
  - b. Deer Mice
  - c. Bald Eagles
  - d. Red Foxes
2. How will the rabbits find a new source of energy?
  - a. The rabbits will eat the Red Foxes.
  - b. The rabbits will go to a new forest.
  - c. The rabbits will stay in the same place.
  - d. The rabbits will get energy from the sun.
3. If the deer mice leave the forest, which organisms will lose a source of energy?
  - a. The Red Foxes
  - b. The Bald Eagles
  - c. The Cottontail Rabbits
  - d. The Grass

## Appendix A: Organism Cards

Adapted from: <http://betterlesson.com/lesson/632179/yellowstone-national-park-food-chains>

**NOTES:** The complete set of organism cards would include: antelope, deer, elk, bald eagle, gray wolf, bighorn sheep, wheatgrass, lodgepole pine tree, deer mouse, osprey, cutthroat trout, bison, beaver, coyote, aspen tree, boreal chorus frog, red-tailed hawk, mayfly, otter, green algae, gray willow, willow flycatcher, rabbit, rattle snake, gray squirrel. Also include cards for fire, flood, and drought. We would also like to include black-and-white photos and/or line drawings for students who find these formats easier to view and understand.



**Bald Eagle**

**Energy sources:** cutthroat trout, deer mice, beaver, snake



**Red Fox**

**Energy sources:** cutthroat trout, deer mice, beaver, fruit, berries



**Cottontail Rabbit**

**Energy sources:** grass, shrubs, vegetables



**Coyote**

**Energy sources:** rabbits, deer mice, snakes, birds



**Deer Mouse**

**Energy sources:** grass, shrubs, grasshoppers, insect larvae



**Cutthroat Trout**

**Energy sources:** algae, mayfly, insect larvae



**Grass**

**Energy sources:** Sun



**Mayfly**

**Energy sources:** plants and algae



**Sun**

**Energy source for plants.**

Appendix B: Environmental Change Cards



**Wildfire**



**Flood**

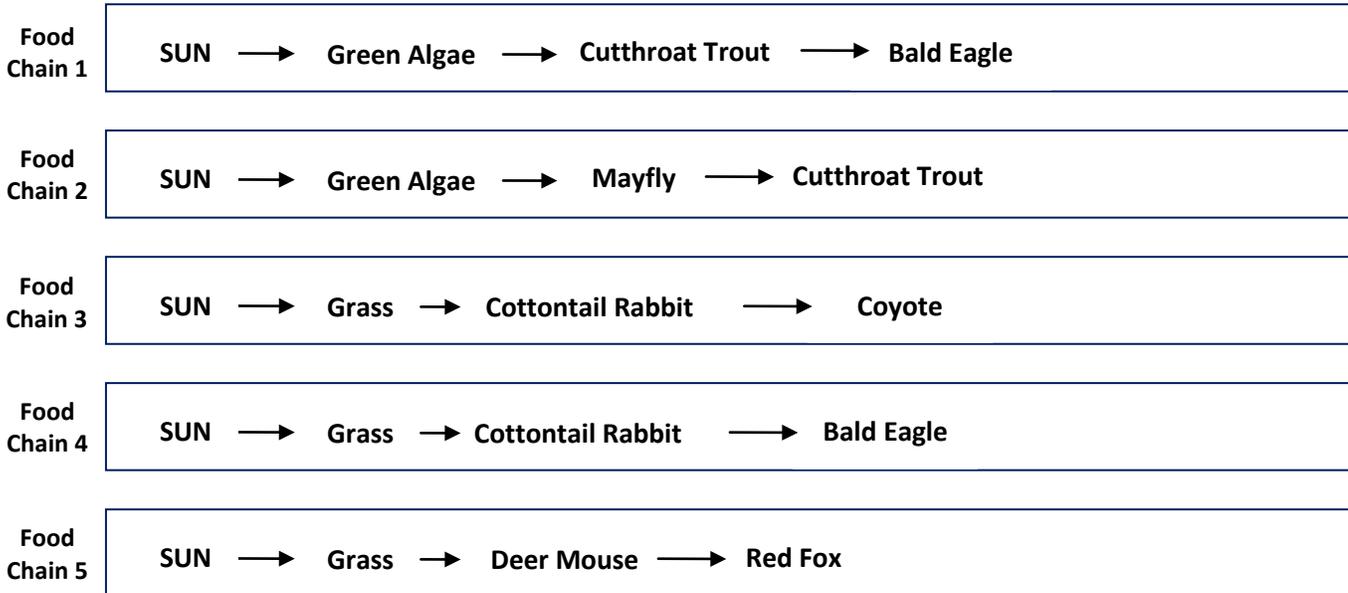


**Drought**

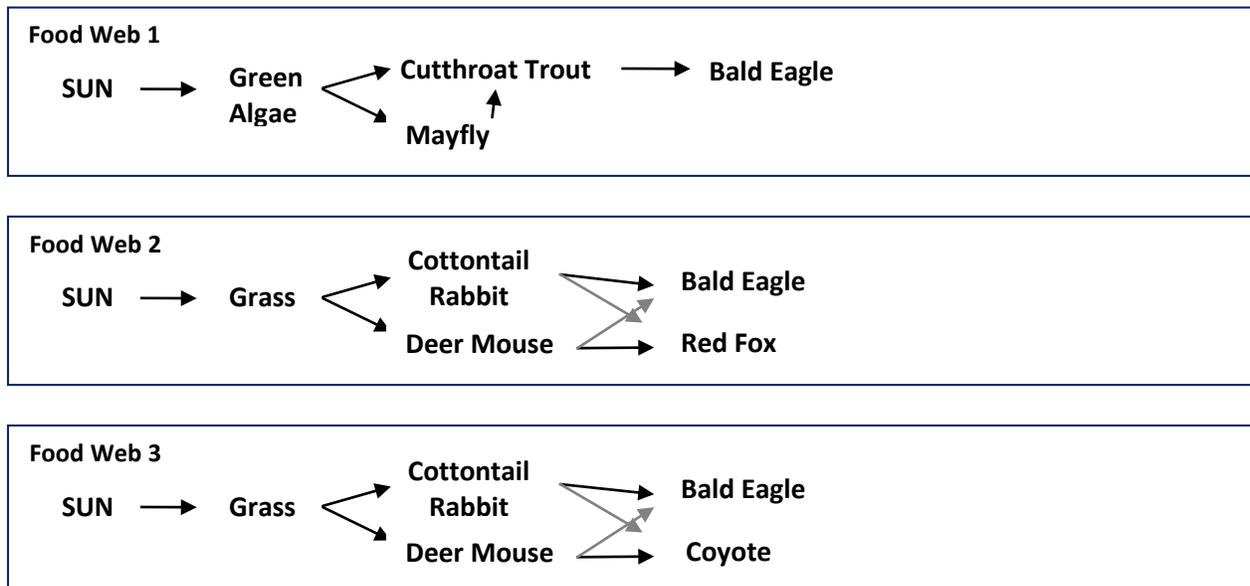
## Appendix C: List of Food Chains and Food Webs

**Directions:** Below is a list of scientifically accurate food chains and food webs for educators to teach students. These alternate food chains and food webs can be used if students are more interested in one animal or plant than another. *All food chains and food webs must start with the sun.*

**Food Chains** (*The food chains below are not exhaustive of the list of organisms we plan to include in this task*)



**Food Webs** (*The food webs below are not exhaustive of the list of organisms we plan to include in this task*)



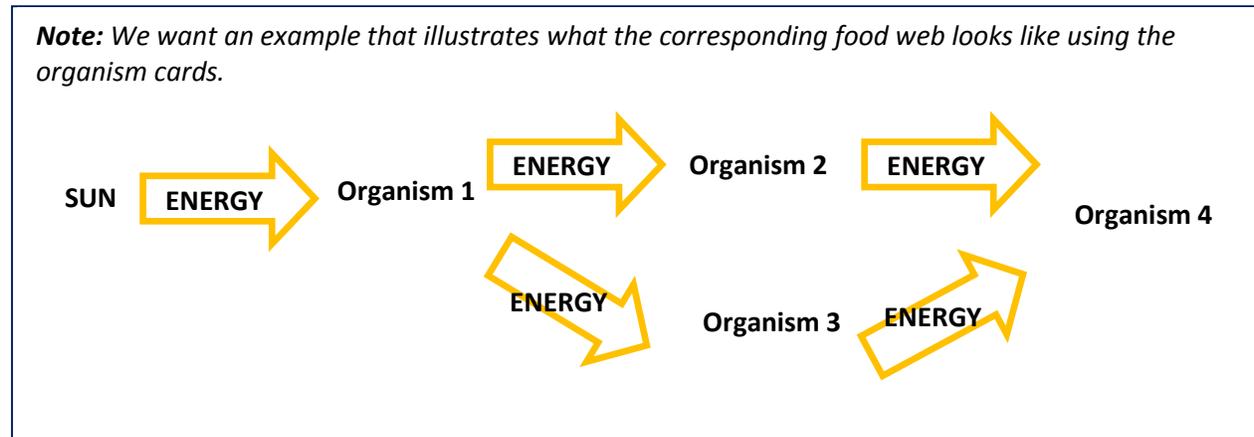
## Appendix D: Food Chain Placemat

*Note: Below is an example only. The Placemat should be 8 ½ x 11. Teachers do not have to use the placemat but they must use the energy arrows between organism cards and/or object or object to indicate energy moving from one organism to another.*



## Appendix E: Food Web Placemat

*Note: Below is an example only. The Placemat should be 8 ½ x 11. Teachers do not have to use the placemat but they must use the energy arrows between organism cards and/or object or object to indicate energy moving from one organism to another.*



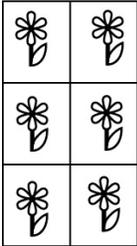
# MULTI-STATE ALTERNATE ASSESSMENT STYLE GUIDE

Editorial and Graphics | 2016–17

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Editorial.....pages 2–16  
Graphics.....pages 17–29  
Technical...page 30

## Editorial

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
=, <, >	Commas are included or omitted in this list of symbols at TD's discretion.	
<b>Abbreviations</b>	<p>Abbreviations are typically <b>not</b> used in passages of mentor texts and example essays associated with Writing constructed-response items.</p> <p>Words are spelled out in item text; they may be abbreviated in graphics for space or aesthetic reasons.</p> <p>With measurement abbreviations, only the abbreviation "in." takes a period.</p> <p>Celsius and Fahrenheit are spelled out at the first reference in the item text, and then the degree symbol and uppercase C or F is used.</p>	<p>United States of America</p> <p>°F, °C</p>
<b>"Above"</b>	See "Positional language."	
<b>Active voice</b>	<p>Active voice is preferred whenever possible.</p> <p>See also "Numerals/Numbers."</p>	
<b>Alternative text</b>	<p>All components of an element requiring alt text should be spelled out, including math symbols and numerals.</p> <p>See also "Art descriptions" and the MSAA Alternative Text document.</p>	<ul style="list-style-type: none"> <li>• Four plus three equals a missing value.</li> <li>• Thirty-six divided by nine equals four.</li> </ul>
<b>A.M./P.M.</b>	A.M. and P.M. are in full-sized capital letters with periods.	
<b>Arrays</b>	The expression defined by the array is centered below the art. The array may be all in one cell or divided into different rows or columns of cells.	 <p>3 x 2</p>
<b>Art descriptions</b>	Descriptions cannot key the item. The descriptions need to provide enough information for the student to be able to respond to the item but not overload the student or turn the item into a memory test.	
<b>Articles</b>	Articles are included to complete sentences.	Point to and read each option to [the] student.

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<b>“Author”/“Writer”</b>	“Author” is used to refer to the person who wrote a Reading passage; “writer” is used to refer to the person who wrote a Writing passage.	
<b>“Below”</b>	See “Positional language.”	
<b>Boldface numerals and text</b>	<p>In grades 3–5 Writing, boldfaced numerals may appear in boxed art associated with a reading passage as part of the writing prompt.</p> <p>Multiple-meaning and academic/domain-specific vocabulary words/phrases are boldface in the passage and the item stem. If a word is boldface in the passage and the portion of the text with that word is repeated in an item <b>not</b> about the bold word, the boldface remains.</p> <p>For items that ask students to select the correct usage of a word, the response options do <b>not</b> contain the vocabulary word in bold.</p> <p>Sounded-out letters and words as words are bold in standalone items.</p>	<ul style="list-style-type: none"> <li>• What does the word <b>discovery</b> mean in this sentence?</li> <li>• Which of these sentences uses the word <b>exchange</b> correctly?</li> </ul>
<b>Bylines</b>	Bylines are <b>not</b> used with Reading or Writing passages. (Passages are written for the project.)	
<b>Calculator</b>	<p>Specific language is used when calculators are permissible.</p> <p>Editors will <b>not</b> check calc status of an item but will edit to match this approved language and will query its use if it seems inconsistent or flawed.</p>	<p>For calc-neutral: You can use a calculator if you need to.</p> <p>For calc-allowed: Use a calculator to solve the problem. OR Use a calculator to check your work.</p>

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Capitalization and punctuation</b></p>	<p>Capitalization of labels in item text should match that given in the art. (Art uses sentence case when there are more than one of the same kind of graphic associated with an item and lowercase when the graphics with an item are different.)</p> <p>The first letter in a word card or phrase card is lowercase unless it is a proper noun or matches labels in a stimulus. There is no ending punctuation.</p> <p>The first letter of a sentence on a sentence strip is uppercase and there is the appropriate ending punctuation.</p> <p>Options that are single words or phrases begin with a lowercase letter.</p> <p>In the Writing Stimulus Materials, some complete sentences are intentionally not capitalized or punctuated due to scoring rules.</p>	<ul style="list-style-type: none"> <li>• Picture 1 and Picture 2</li> <li>• Rectangle A and Rectangle B</li> <li>• penguin, cup, and tree</li> </ul>
<p><b>Cards/Strips</b></p>	<p>Cards/strips appear in the <i>Directions for Test Administrators</i>.</p> <p>The approximate maximum character count for word or word/picture cards is 15 to 20 including punctuation. For text with a character count of more than 20 characters, a sentence or sentence/picture strip might be best suited. Editors query the TDs about uses that are inconsistent with this rule, but they do <b>not</b> mark as an edit.</p> <p>The size of cards and strips will be dependent on MSAA requirements.</p>	
<p><b>“Chart” vs. “data table”</b></p>	<p>The word “chart” may be used when the entries are shapes or pictures; the term “data table” is always used when the entries are numerals.</p>	
<p><b>Chronology within an item</b></p>	<p>A transition word such as “then” is included for reinforcement of the chronology within an item even if the word “more” is present.</p>	<p>Sam had 3 pencils. [Then] Sam’s teacher gave him 2 more pencils.</p>
<p><b>Contractions</b></p>	<p>Contractions are avoided in item text.</p> <p>Contractions are permissible in teacher directions and passages.</p>	
<p><b>“Conversion table”</b></p>	<p>See “Data table.”</p>	

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>“Correct”/“Correctly”</b></p>	<p>“Correct” or “correctly” is <b>not</b> used when referring to the correct answer (key) of an item. It is a given that the student is being asked to find the correct answer.</p> <p>If the term is being used as a modifier or quantifier within the context of the item, editors do <b>not</b> mark to delete it.</p>	<p>Which equation <del>correctly</del> shows how many bananas Larry has now?</p> <p>Which data table shows the correct information?</p>
<p><b>“Counters”/“Models”</b></p>	<p>Depending on the context, either the term “counters” or “models” should be used rather than “blocks.”</p> <p>See also “Introductory statement/Pre-reading statement.”</p>	<p>You may use counters and drawings to help solve the problem.</p>
<p><b>“Cutout”</b></p>	<p>In item text, the specific term should be used (e.g., tile, shape, number card) instead of “cutout.”</p> <p>In teacher directions, the term “cutouts” should only be used when more than one type of cutout is being referred to.</p>	<p>A teacher presenting a blank bar graph and a set of tiles to be used to make the graph could be instructed “Present the cutouts . . .”</p>
<p><b>Data table</b></p>	<p>The term “data table” should be used for all graphical tables of data and information.</p> <ul style="list-style-type: none"> <li>Exception 1: The term “ratio table” is also acceptable when ratio is being addressed in the item.</li> <li>Exception 2: The term “conversion table” is used when the table consists of formulas and conversions (e.g., 12 inches = 1 foot).</li> </ul> <p>Numbers in a column in a data table should be aligned on the decimal. Money amounts are aligned on the decimal; the dollar symbol is immediately to the left of the numerals. (Space is not inserted to align the dollar symbols.)</p> <p>See also “Table”/“Chart.”</p>	
<p><b>Decimals &lt; 1</b></p>	<p>Decimals less than 1 have a leading zero. The text describing the decimal takes a singular verb.</p>	<p>0.25</p>
<p><b>Dictionary</b></p>	<p>The dictionary for the project is <i>Merriam Webster’s 11th Collegiate Edition</i>.</p>	
<p><b>Dollar amounts</b></p>	<p>Whole dollar amounts are followed by “.00” if grouped with other amounts of money that have decimals. If the group only consists of whole dollar amounts, “.00” is <b>not</b> used.</p>	<ul style="list-style-type: none"> <li>Bob spent 2.75 for a book and \$3.00 for a ball.</li> <li>Bob spent \$2 for a book and \$3 for a ball.</li> </ul>
<p><b>“Draw”</b></p>	<p>The word “draw” should <b>not</b> be used to mean “pull or take out” as students are often asked to draw or make drawings to help solve questions.</p>	<p><del>Draw</del> Make a conclusion.”</p>
<p><b>“Each”</b></p>	<p>See “Per.”</p>	

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<b>“Earth,” “Moon,” and “Sun”</b>	“Earth,” “Moon,” and “Sun” are capitalized in references to the objects in the sky. References to soil (earth), stages of the moon (full moon), and sunlight (sun) are lowercased.	
<b>Emphasis</b>	Math uses lowercase boldface. ELA uses all caps. In ELA, “best” and “main” are emphasized at TD’s discretion; editors do <b>not</b> query.	
<b>Equation/ Expression</b>	The terms “equation” and “expression” should be used appropriately.  The term “number sentence” is not used.  At specialist’s discretion, the term “formula” is used instead of “equation” for the specific formulas for area, perimeter, and volume.  Equations and expressions both have a space around each numeral and symbol.	<ul style="list-style-type: none"> <li>• An equation has an equals symbol (e.g., <math>3x + 4 =</math>).</li> <li>• An expression has no equals symbol (e.g., <math>3x + 4</math>).</li> </ul>
<b>Fiction/Nonfiction</b>	Fictional passages are referred to as “stories” (or “poems”); nonfiction passages are referred to as “informational text.”	
<b>Formulas</b>	Formulas will be provided in large type below an item’s prompt as part of the item as needed. Editors do <b>not</b> query inclusion or exclusion of formulas.  Labels on art match the provided formula (i.e., if the units are spelled out in the formula, they are spelled out in the art.  See also “Conversion table,” “Data table,” and “Equation/Expression.”	
<b>Fractions</b>	When fractions are required to be spelled out in teacher directions, the context is used to determine the wording.  Fractions are vertically stacked.	<ul style="list-style-type: none"> <li>• Calculations: teacher reads as three-fourths</li> <li>• Probability: teacher reads as three out of four</li> <li>• Slope: teacher reads as three over four</li> </ul>
<b>Grade level of language in item</b>	In grade 3, the language should be at a third-grade level unless the term is specific to the standard or content area.  In grades 4 and above, the language should be at a fourth-grade level unless the term is specific to the standard or content area.	
<b>Graphs (bar, pictograph, etc.)</b>	Graphs that are provided as templates for the student to complete are called “incomplete” in item text.	This is an incomplete bar graph.

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Graphics</b></p>	<p>Graphics in passages are placed as close as possible to the corresponding text. If the graphic has no corresponding text, it is placed wherever it makes sense.</p> <p>Editors query any element in a graphic that is not used in the item.</p>	<p>A data table lists two formulas, but only one formula is required to solve the problem in the item.</p>
<p><b>“Here is” vs. “This is”</b></p>	<p>Sentences that introduce stimuli generally should <b>not</b> begin with a “Here is” or “Here are” construction. In accommodating students with little or no vision, the preferred language is “This is” or “These are” (and like variants).</p> <p>Note that the “Here is” construction is unavoidable in some cases, such as introducing options or presenting cutouts. Editors can make suggestions for rewrites whenever possible to avoid the construction.</p>	<p>“Here is a rectangle” should be “This is a rectangle.”</p>
<p><b>“Item”</b></p>	<p>Using the word “item” meaning “object” is avoided since the word “item” meaning “test question” is in the first sentence of all Math items.</p>	
<p><b>Introductory statement/ Pre-reading statement</b></p>	<p>Math has introductory statements; Reading has pre-reading statements.</p> <p>Each math item must begin with the introductory sentence “This item is about . . .” The next part of this sentence might contain a gerund (e.g., dividing a rectangle) or a noun (e.g., the area of a rectangle). This sentence is its own paragraph; the rest of the item follows.</p> <p>Exception: Any sentence that introduces the item rather than is part of the item is in the same paragraph as the introductory sentence.</p> <p>The preference is to combine the first two sentences of an item in instances when the next sentence in the item introduces a math concept (e.g., “area”) while the introductory statement does not (e.g., “. . . about rectangles”).</p> <p>All ELA passages must begin with an introductory sentence(s). See the ELA Refinements document.</p> <p>All ELA items begin with a sentence reminding the student about the passage or an element of reading.</p>	<p>This item is about solving word problems.</p> <p>You may use counters or drawings to help solve the problem.</p> <p>This item is about finding the area of a rectangle.</p> <ul style="list-style-type: none"> <li>• RI: We are going to read an informational text about whales. After we read, you will be asked a question about the main idea.</li> <li>• RL: We are going to read a story about Jim. After we read, you will be asked a question about the theme.</li> <li>• We read about a girl who lives with her mom and dad.</li> <li>• Remember, the setting tells where the story takes place.</li> </ul>

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Item text</b></p>	<p>Item text is the actual text with which the student is interacting.</p> <p>Item text should be in roman type.</p> <p>Item text should <b>never</b> be in italics.</p>	
<p><b>Length/Width</b></p>	<p>In references to shapes that are provided, the term “length” refers to the horizontal measure and the term “width” refers to the vertical measure.</p>	<p>The length of the rectangle is 3 inches. The width is 1 inch.</p> 
<p><b>Literary terms</b></p>	<p>Definitions are provided for literary terms that are used in the Reading and Writing items.</p> <p>See the ELA Refinements document.</p>	
<p><b>Materials lists and object exchange</b></p>	<p>Materials lists should not key an item.</p> <p>See also “Art descriptions.”</p>	
<p><b>Measurement units</b></p>	<p>Square units must be spelled out in grades 3–5, are abbreviated in grades 6–8, and use superscript in HS.</p> <p>Numerals that relate to a unit of measure should always include the unit.</p> <p>Units should be included in the stem as well as the options.</p> <p>See also “Options.”</p>	<ul style="list-style-type: none"> <li>• Gr. 3–5: square feet</li> <li>• Gr. 6–8: sq ft</li> <li>• HS: ft<sup>2</sup></li> </ul> <ul style="list-style-type: none"> <li>• The length of the rectangle is 5 inches.</li> <li>• The radius of the cylinder is 3 feet.</li> </ul> <p>How long, in feet, was the fence? 30 feet</p>
<p><b>Missing value</b></p>	<p>Empty spaces that need to be filled in (e.g., in patterns, equations, data tables) should have a blank horizontal line in the space (e.g., cell).</p> <p>The preferred language is “What number belongs in the [data table, space, etc.]?”</p> <ul style="list-style-type: none"> <li>• If needed in grades 3–8, the missing value can be called the “missing value” or “missing number.”</li> <li>• If needed in high school, the missing value can be called the “unknown value.”</li> </ul>	<p><math>3 + \_ = 10</math></p>
<p><b>Names</b></p>	<p>Full names (first and last) are used in the pre-reading statement for reading passages and items. Last names alone can be used in the item stem and options.</p>	<p>“We read about George Washington . . . Which sentence explains how Washington inspired his troops?”</p>

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>“Narrator”/“Speaker” vs. “person in the story/poem”</b></p>	<p>“Narrator” and “speaker” are used at grades 5+; “the person in the story [poem]” is used at grades 3 and 4.</p>	<ul style="list-style-type: none"> <li>• In the story, the narrator reveals Sally’s thoughts and feelings while telling the story. The narrator also includes dialogue and actions between Sally and her family.</li> <li>• In the poem, what does the speaker MOST LIKELY think about summer?</li> <li>• In this part of the story, the person in the story is afraid she may fall down.</li> </ul>
<p><b>Numerals/Numbers</b></p>	<p>A comma should be included in all numbers of four or more digits except for years.</p> <p>Numerals are used for numbers that are part of the equation/math of an item in the item text.</p> <p>Numbers are spelled out when <b>not</b> part of the equation/math of an item in the item text.</p> <p>Numbers are spelled out in teacher directions only when the numbers are to be read aloud to the student.</p> <p>Sentences should <b>not</b> begin with a numeral. Recast the sentence if the number must be a numeral even if this makes the sentence passive.</p>	<p>1,234 175,987</p> <p>Lisa had a pizza cut into 8 equal slices. She ate 2 slices of the pizza. How many slices are left?</p> <p>Lisa had a pizza cut into eight equal slices. She ate two slices of the pizza. She really likes pizza.</p> <p><i>Point to the number 42.</i> <i>Point to and read the number eight and sixty-three hundredths.</i></p> <p>from “14 students replied to the survey” to “There were 14 students who replied to the survey”</p>
<p><b>Option alignment</b></p>	<p>When all the options are numbers, the options should be left-aligned. This includes dollar amounts, mixtures of positive and negative numerals, standalone numerals, and numerals with units.</p>	<p>A. 2 B. 200 C. 2,000</p>
<p><b>Options</b></p>	<p>Tier 1 selected-response items will always be a dichotomous choice (two options).</p> <p>Selected-response items at Tiers 2, 3, and 4 will have a choice of three options.</p> <p>Units must be included in all options.</p>	<p>A. True B. False</p> <p>A. 10 inches B. 12 inches C. 14 inches</p>

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Option order</b></p>	<p>Numerical options should be in ascending or descending order.</p> <p>EXCEPTION: Items in which the ability to compare or order values is assessed.</p> <p>In ELA items, options are stacked by length (short to long) or can be reordered to achieve key variation.</p>	<p>What is the total number of cups in the recipe? A. 9.2 B. 11.4 C. 18.2</p> <p>What number is the greatest value from the set of values? A. 9.2 B. 11.4 C. 18.2</p>
<p><b>Ordered pairs</b></p>	<p>There is a space between the comma and the second coordinate in an ordered pair.</p>	<ul style="list-style-type: none"> <li>• (4, 2)</li> <li>• (-3, 9)</li> </ul>
<p><b>Paragraphs</b></p>	<p>Block paragraphs are used; tab paragraphs are <b>not</b> used.</p>	
<p><b>Paragraph, line, and stanza numbers</b></p>	<p>Numbers are generally <b>not</b> used to identify paragraphs in passages or lines/stanzas in poems. They may be used in grades 3–5 Writing passages to correspond with the numerals in graphics. (See “Boldface numerals and text.”)</p>	
<p><b>“Pay attention to”</b></p>	<p>This phrase is avoided.</p>	<p>Look at [this graph/table] <del>and pay attention to . . .</del></p>
<p><b>“Per”</b></p>	<p>The term “per” is restricted to specific content-related usage, such as “miles per hour.” Otherwise, the term “each” should be used.</p>	<ul style="list-style-type: none"> <li>• Gary drives 55 miles per hour.</li> <li>• Jim earns \$9 each hour.</li> </ul>
<p><b>Pi</b></p>	<p>The symbol for pi should always be used, <b>not</b> the word “pi.”</p> <p>When spelled out in teacher directions, the numeral should be read “three point one four” rather than “three and fourteen hundredths.”</p> <p>When presenting the symbol and the value, the approximation symbol is always used.</p>	<p><math>\pi</math> B.14</p>
<p><b>Pictograph vs. picture graph</b></p>	<p>“Pictograph” is the default; “picture graph” may be used in certain items at certain grades at client’s discretion.</p>	

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)						
<p><b>Place value chart</b></p>	<p>“Place value chart” is <b>not</b> hyphenated.</p> <p>Place value charts should have at least two rows, but often have three rows, of information. The top row is the place value (e.g., ones, hundreds, tenths). The second row is the numeral. The third, or bottom, row is the number spelled out. The third row may be omitted at TD’s discretion.</p> <p>Items about decimals can use a place value chart.</p> <p>Items about rounding numbers should <b>not</b> use a place value chart.</p> <p>See also the Graphics section of this document.</p>	<table border="1" data-bbox="1045 302 1214 464"> <tr> <td>Tens</td> <td>Ones</td> </tr> <tr> <td>4</td> <td>1</td> </tr> <tr> <td colspan="2">forty-one</td> </tr> </table>	Tens	Ones	4	1	forty-one	
Tens	Ones							
4	1							
forty-one								
<p><b>“Point to . . .”</b></p>	<p>Teacher directions often begin with “Point to” and should immediately follow spoken text.</p> <ul style="list-style-type: none"> <li>Use “<i>Point to and read . . . to the student</i>” for tables, graphs, number lines, organizers, and the like.</li> <li>Use “<i>Point to and describe . . . to the student</i>” for models.</li> <li>Use “<i>Point to and read each option to the student</i>” for options.</li> </ul> <p>Directions referring to a graphic should immediately precede the graphic.</p>	<p>This is a triangle. <i>Point to the triangle.</i></p>						
<p><b>Positional language</b></p>	<p>Terms that indicate position (e.g., above, below, beneath, in front of, next to) are <b>not</b> allowed in item text but are permissible in teacher directions.</p>	<p>NO: Complete the graph below. YES: Complete this/the graph.</p> <p><i>Place the response template on the work surface. Place the number cards below the template.</i></p>						
<p><b>Prefixes/suffixes</b></p>	<p>In items about prefixes or suffixes, a hyphen appears after the prefix and before a suffix. The prefix/suffix and hyphen are in quotation marks.</p>	<p>What does the prefix “un” make the word <b>unhappy</b> mean?</p>						
<p><b>Pronouns</b></p>	<p>In passages, pronoun referents (antecedents) should be clear and limited in use.</p>							

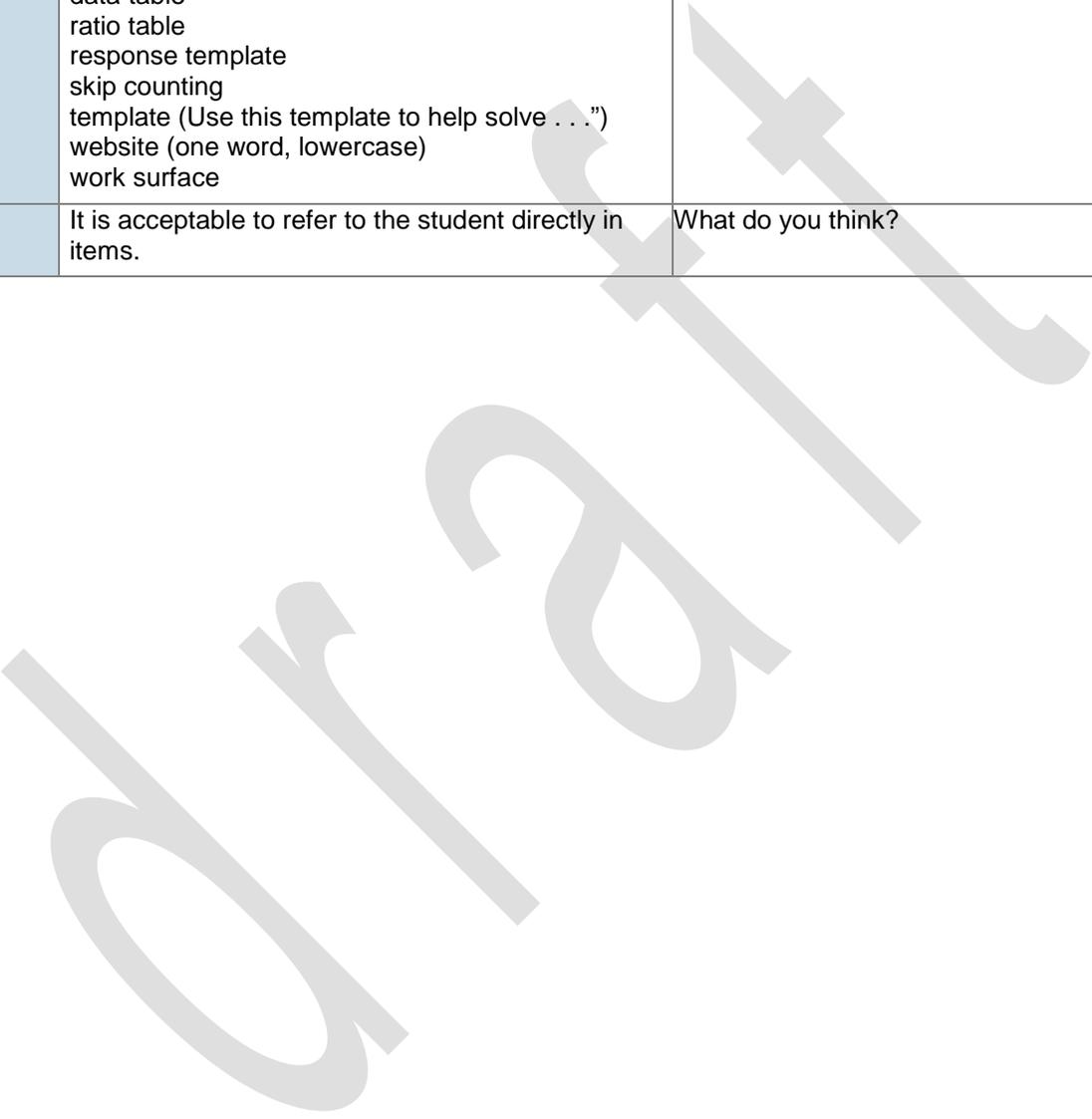
STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<b>Punctuation</b>	Options that are single words or phrases do <b>not</b> have end punctuation.	A. ball B. car C. dog
	Closed stems end in a period or question mark.	What is the area of the rectangle?
	Open stems end with an em dash.	In the poem, Pat thought the tree was going to provide—
	In patterns and sequences, a comma precedes the ellipsis.	7, 6, 5, . . .
	Ellipses are three periods with a space before and after each dot. The ellipsis created by Word is <b>not</b> used.	. . .
<b>Quotations</b>	Standalone quoted sentences in stems are boldface, left aligned, and without quotation marks.	
	When quoted material is part of a sentence in the stem, it is in regular type (to match the stem) and in quotation marks.	
<b>Quotation marks</b>	Quotation marks are used in options for information that is directly quoted from a passage.	
	Paraphrased information does <b>not</b> require quotation marks.	
<b>“Reason why”</b>	The preference is to use “why” alone.	Which sentence tells why Bobby likes cats?
<b>“Ratio table”</b>	See “Data table.”	
<b>Ratios</b>	Ratios have a space around the colon.	4 : 5
<b>Reader/Readers</b>	When items refer to the audience of passages, “the reader” (singular) is used.	What does the reader learn when the cat hides in the paper bag?
<b>“Represents”</b>	The word “represents” is <b>not</b> used. “Shows” or “means the same as” is used instead.	
<b>“Sign”/“Symbol”</b>	The word “sign” is <b>not</b> used to refer to mathematical operators (e.g., equals sign). “Symbol” is used instead.	equals symbol addition symbol
<b>Similar shapes</b>	Shapes that are similar mathematically in an item must be proportionate to each other.	
	See the Graphics chapter for more information about shapes.	
<b>Stem</b>	Questions should be framed in a way that is open to any response mode. This allows the students to indicate the answer in any way that works for them. Thus, the stem is presented so that it is response-neutral.	
	See also “Punctuation.”	

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<b>Subheadings/ Captions in items</b>	In items, referred-to headings and captions are boldface with no quotation marks.	
<b>Subheadings in passages</b>	Subheadings in passages are boldface, left aligned, and in title case. (They retain the boldface in references to them in items. See above.)	
<b>Table/Chart</b>	<p>“Table is <b>not</b> used to mean “data table.” It is only used to refer to the piece of furniture.</p> <p>The word “chart” is <b>not</b> used to mean “data table.”</p> <p>See also “Data table.”</p>	
<b>Teacher directions for DTAs</b>	<p>Teacher directions are italicized.</p> <p>Teacher directions are the text in an item asset that is <b>not</b> read by the teacher to the student. It is direction to the teacher as to how to administer the item to the student.</p> <p>Teacher directions are imperatives and do <b>not</b> begin with “Teacher will.”</p> <p>Numbers, percentages, dollar amounts, etc. that are to be read aloud to the student are spelled out in teacher directions. Otherwise, numerals are used.</p> <p>When the teacher is directed to read an element, the phrase “to the student” must be included.</p> <p>Graphics and stimuli should be identified by name in the directions rather than by the word “graphic” or “stimulus.”</p> <p>A lack of teacher directions at any point in an item should be queried. Editors do <b>not</b> mark to insert teacher directions.</p> <p>In general, teacher directions should always precede item options. Editors query when directions are missing.</p> <p>In general, teacher directions should always follow the text that they refer to and should typically precede a graphic that they refer to.</p> <p>See also “Point to . . .”</p>	<p><i>Present the response template to the student.</i></p> <p><i>Point to and read the organizer to the student.</i></p> <p><i>Point to the pencils.</i></p> <p><i>Point to and read each option to the student.</i></p> <p>The point <b>P</b> is on the coordinate grid. <i>Point to point P.</i> [art]</p>
<b>Tense</b>	Past tense is required in the context of all items.	Sam had 2 pencils. Then he lost 1 pencil. How many pencils does Sam have now?

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)														
<p><b>Terms to delete or avoid</b></p>	<p>See the following elements in this table:</p> <table border="0"> <tr> <td>“Above”</td> <td>“Below”</td> </tr> <tr> <td>“Correct”/“Correctly”</td> <td>“Cutouts”</td> </tr> <tr> <td>“Here is” vs. “This is”</td> <td>“Item”</td> </tr> <tr> <td>“Pay attention to”</td> <td>“Per”</td> </tr> <tr> <td>“Positional language”</td> <td>“Represents”</td> </tr> <tr> <td>“Sign”/“Symbol”</td> <td>“Table”/“Chart”</td> </tr> <tr> <td>“Track one finger . . .”</td> <td>“We”</td> </tr> </table>	“Above”	“Below”	“Correct”/“Correctly”	“Cutouts”	“Here is” vs. “This is”	“Item”	“Pay attention to”	“Per”	“Positional language”	“Represents”	“Sign”/“Symbol”	“Table”/“Chart”	“Track one finger . . .”	“We”	
“Above”	“Below”															
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“Positional language”	“Represents”															
“Sign”/“Symbol”	“Table”/“Chart”															
“Track one finger . . .”	“We”															
<p><b>Text elements and treatment for passages, stimuli/stems, and options</b></p> <p>(See the label specifications in the Graphics section of this document.)</p>	<p>Titles should not cue the correct option. Titles are required for tables and graphs.</p> <p>Editors query to delete labels that are not used in the item</p> <p>Passage titles are boldface, in title case and are centered above the first paragraph. Titles for charts, tables, diagrams, graphs are title case, boldface and centered above the text or graphic</p> <p>Text below graphics: Sentence = sentence case Word = sentence case Phrase = sentence case</p> <p>Angles Names of shapes based on points/vertices Points on a coordinate grid Shapes Variables</p>	<p>A rectangle is shown with its width labeled “3” and its length labeled “4,” but the item asks the student to place cutout tiles on the rectangle and to count the tiles to find the area.</p> <div data-bbox="1019 831 1414 1190" data-label="Image"> <p>The diagram shows a simple line drawing of a flower. It has a central stem with three leaves and a single flower at the top. The roots are shown below the ground line. Labels with leader lines point to the flower, a leaf, and the roots.</p> </div> <p>The flower is pretty. flower parts of a flower</p> <ul style="list-style-type: none"> <li>• angle K</li> <li>• triangle <b>ABC</b></li> <li>• point R</li> <li>• shape A</li> <li>• <b>y = 2x</b></li> </ul>														

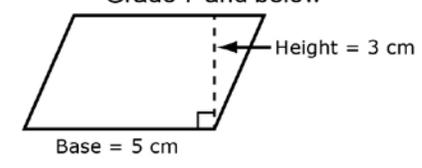
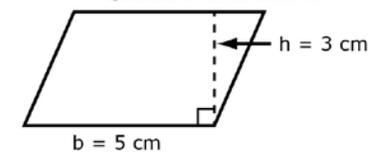
STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)				
<b>Theme/Message, central idea</b>	The term used is driven by the standard language. For some standards, there is a clear target (for example, theme) but for others it is mixed (central message, lesson, moral). The standard language should be mirrored in item development unless the states/IRC feels it is too complex for the grade level. (The committees might prefer “message” over “theme” for lower grades, for example.)					
<b>Timelines</b>	Entries in timelines are treated as sentences (with initial cap and ending punctuation).					
<b>“Track one finger . . .”</b>	The teacher direction to “ <i>track one finger, from left to right . . .</i> ” should be avoided. Editors query its use and suggest replacement text.					
<b>Universal design</b>	<p>Item text should be written with universal design in mind—subject-verb-object construction. Complex sentence structures and sentences that begin with dependent clauses are avoided.</p> <p>Compound sentences are broken up.</p> <p>See also “Active voice” and “Tense.”</p> <p>Colloquialisms and words with double meanings are avoided. See also “Draw,” “Item,” and “Table”/“Chart.”</p>	<p>from “For each eraser Haley found, add another eraser to the eraser row” to “Add another eraser to the eraser row for each eraser Haley found”</p> <p>from “Look at the data table again and find how many erasers Haley found” to “Look at the data table again. How many erasers did Haley find?”</p>				
<b>Unknown value</b>	See “Missing value.”					
<b>Variables</b>	<p>Variables are boldface in running text, equations, and graphics.</p> <p>The letter used for a variable should be the first letter of the object name, when applicable.</p> <p>Variables should be included in the headers of data tables enclosed in parentheses below what the variable represents.</p> <p>Using the letter “s” and confusable letters in one item (e.g., b, d, p, q) is avoided.</p> <p>A letter is not used to represent two different values in an item (i.e., <b>c</b> is not used to represent “cookie” in a model and “crayons” in the item).</p>	<p>“Solve for <b>x</b>.”</p> <p>“. . . bottles, <b>b</b>, were filled in <b>m</b> minutes?”</p> <table border="1" data-bbox="1029 1430 1446 1556"> <thead> <tr> <th data-bbox="1029 1430 1240 1524"><b>Number of tickets</b> (<b>t</b>)</th> <th data-bbox="1240 1430 1446 1524"><b>Cost</b> (<b>c</b>)</th> </tr> </thead> <tbody> <tr> <td data-bbox="1029 1524 1240 1556"></td> <td data-bbox="1240 1524 1446 1556"></td> </tr> </tbody> </table>	<b>Number of tickets</b> ( <b>t</b> )	<b>Cost</b> ( <b>c</b> )		
<b>Number of tickets</b> ( <b>t</b> )	<b>Cost</b> ( <b>c</b> )					
<b>Vocabulary words</b>	Vocabulary words are boldface in items and passages.	“What does <b>typical</b> mean in the paragraph?”				
<b>“We”</b>	Pronouns or other language that integrates the teacher/administrator into the item is avoided. Sentences should be rewritten to make the language neutral.	<ul style="list-style-type: none"> <li>• We, I, Let’s, Us</li> <li>• “We can find the area of a rectangle by . . .” can be revised to “The area of a rectangle can be found by . . .”</li> </ul>				

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<b>“Which of these”</b>	“Which of these” is preferred over “Which of the following,” but both are avoided when it is possible to refer to a noun instead.	Which sentence is correct? Which of these is a capital letter?
<b>Word list</b>	braille (lowercase) cutout (one word) distractor (industry term/spelling) conversion table data table ratio table response template skip counting template (Use this template to help solve . . . .) website (one word, lowercase) work surface	
<b>“You”</b>	It is acceptable to refer to the student directly in items.	What do you think?

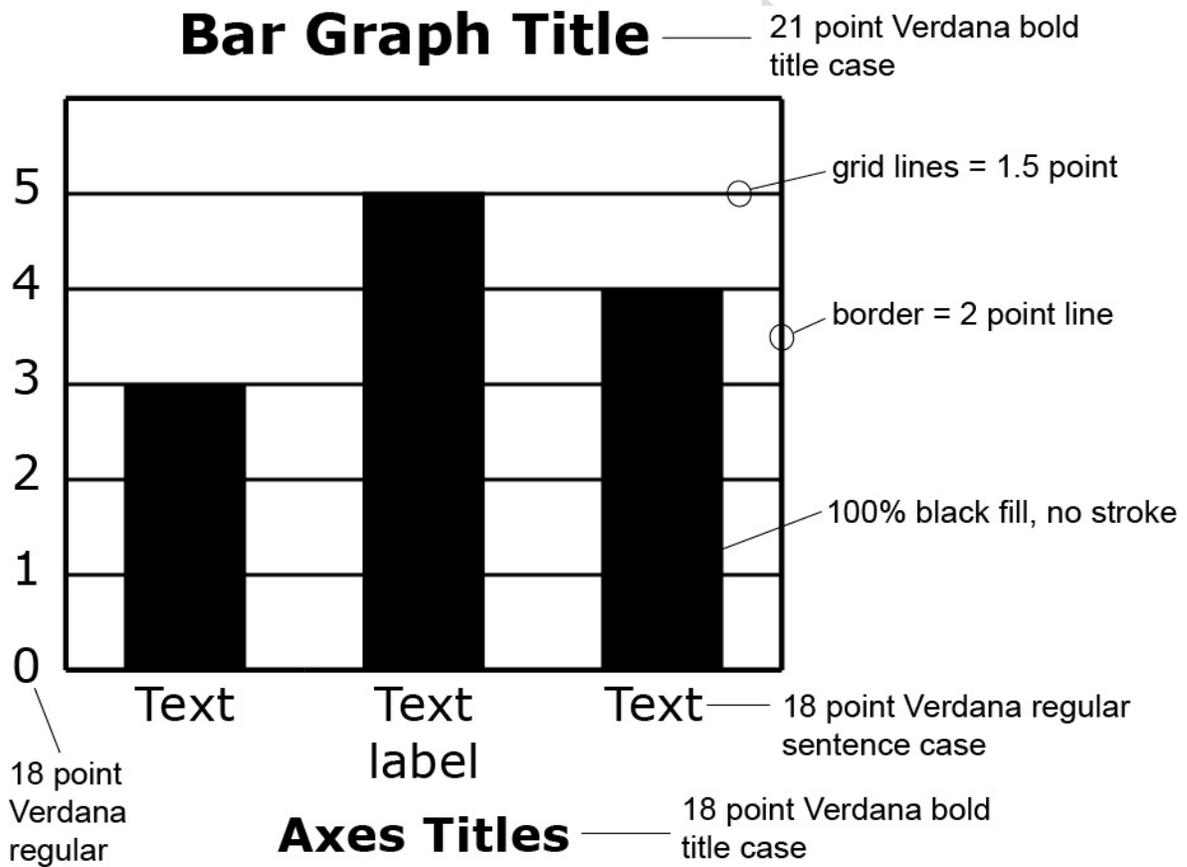


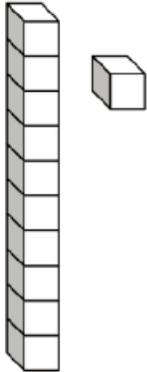
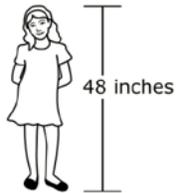
## Graphics

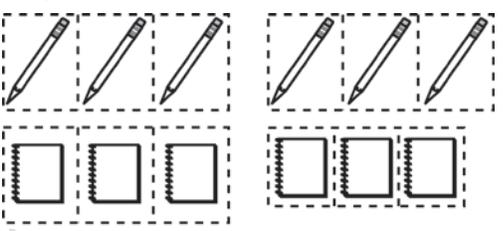
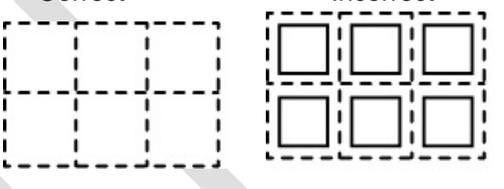
- Graphics are black-and-white line drawings with minimal shading.
- Universal design standards for the visually impaired are applied to all graphics.
- Stimulus graphics include details that may be used as plausible distractors.
- Art is as large as possible within the given format.
- If the content requires the art to be too large to fit within the given sizing specs, illustrators do not force the content by breaking other specs such as line weight, font size, etc.
- Graphics are as realistic as possible. They must not be cartoonish.
- Graphics are presented with clarity and unnecessary details are omitted.
  - *Example 1: On a house, a window can be a rectangle. It doesn't need trim and shutters.*
  - *Example 2: For an array in Mathematics, the objects can be baseballs, not zebras.*
  - *Example 3: Clothing doesn't need pattern. A plain, white shirt is adequate.*
  - *Example 4: An apple tree can have 10 apples rather than 30.*

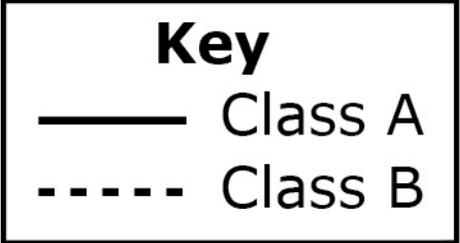
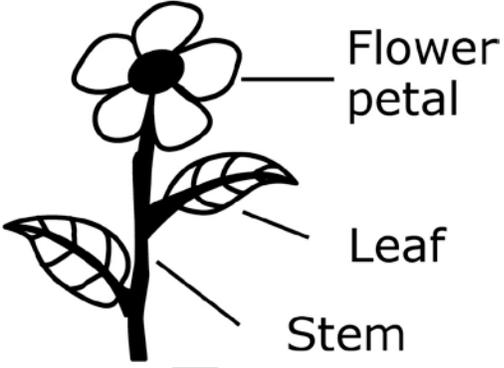
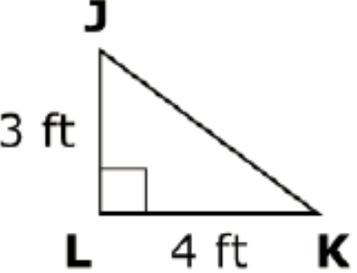
STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p style="text-align: center;"><b>Area</b></p>	<p>Labels on graphics should match the formula (i.e., If “Height” is spelled out in the formula, it should be labeled, “Height” on the graphic).</p> <p>There is 0.5" spacing between the shape and the formula</p> <p>Labels are 18 point Verdana</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Grade 7 and below</p>  <p style="text-align: center;">Grade 8 and above</p>  </div>
<p style="text-align: center;"><b>Arrows</b></p>	<p>There is approximately 1/8-inch of space between the arrow tip and the object it is pointing to.</p> <p>Illustrators use Adobe Illustrator #9 arrow point at 75% with a 3-point line.</p>	<p style="text-align: center;"><b>Arrowheads</b></p> <p>Side <i>b</i> should be roughly 2/3 the length of side <i>l</i>.</p> 

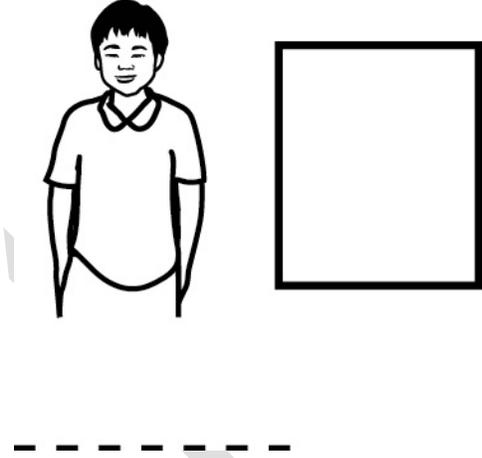
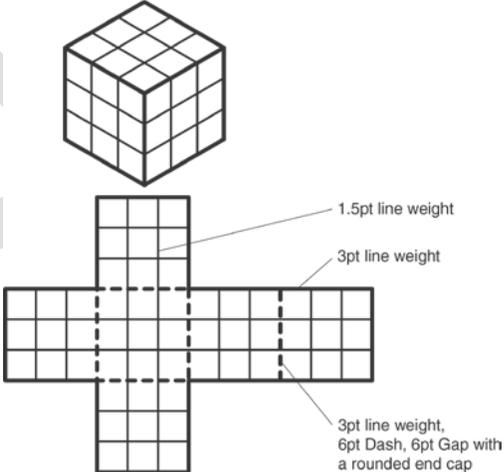
STYLE ELEMENT	STYLE RULE(S)
<b>Bar Graphs</b>	Histograms: 30% black fill with 2-point black line weight Zeroes on y-axis: For grades 3–5, boldface; for grades 6 and up, regular Vertical grid lines are 1-point line weight. They are only used for items that use cutouts.



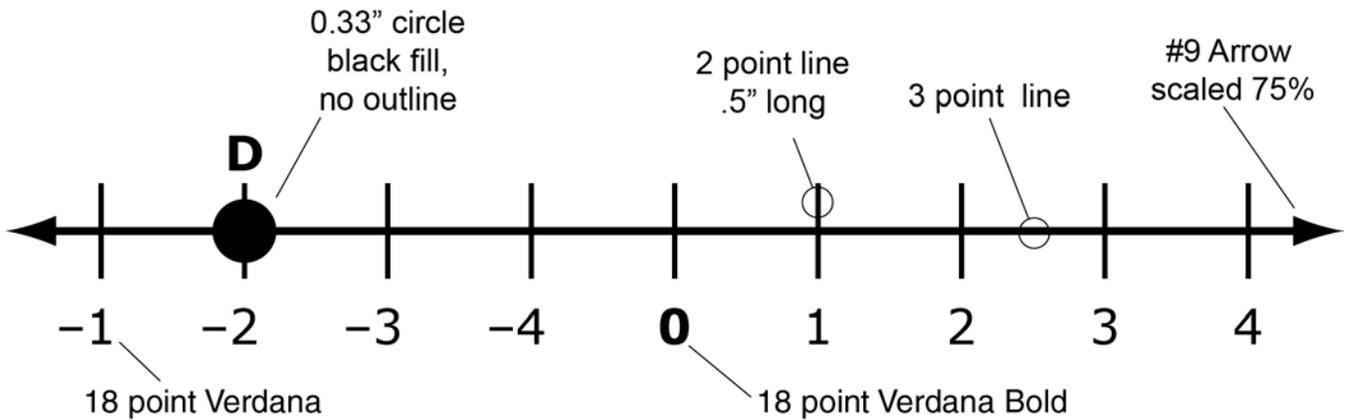
STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Base-ten blocks</b></p>	<p>The left face of the cubes are shaded 30% black.</p>	
<p><b>Borders</b></p>	<p>2-point line weight</p> <p>Borders are used for ELA option graphics.</p> <p>Borders are not used for stem graphics and Math option graphics.</p>	
<p><b>Brackets</b></p>	<p>Brackets are added per the Specialist &amp;/or client's request.</p> <p>Illustrators embed measurement labels horizontally inside the brackets; space permitting.</p> <p>End caps are 0.25". Illustrators do not use arrow tips.</p> <p>1.5-point line weight</p>	
<p><b>Buildings</b></p>	<p>Illustrators use building styles commonly found currently in the United States (unless otherwise dictated by the item).</p>	<p>An 18th-century colonial house would not be appropriate for use in multiple states.</p>
<p><b>Clocks</b></p>	<p>Clocks may be analog or digital at the Specialist's discretion.</p> <p>Analog clocks must have minute marks.</p>	

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Cutouts</b></p>	<p>Cutouts are referred to as ‘tiles’ or another specific term in the stimulus.</p> <p>Cutout lines around shapes should create the shape at actual size; there should be no gap between the cutout lines and the edge of the shape.</p> <p>Line weight: 2 points Dash: 6-point dash with a 6-point gap</p> <p>Stimulus graphics should not contain cutout lines.</p>	<p>Correct                      Incorrect</p>  <p>Correct                      Incorrect</p> 
<p><b>Environment and settings</b></p>	<p>The setting/environment should be very simple. Overly detailed backgrounds are undesirable and reduce accessibility for sight-impaired students. Only the minimum needed to establish context and plausible distractors is necessary.</p>	
<p><b>Equations</b></p>	<p>Numerals are Verdana</p> <p>TBD: 48 points</p> <p>Missing answers are indicated by a line. Illustrators do not use question marks.</p> <p>Illustrators insert a space between each part in the equation.</p>	$3 \times 8 = 24$ $3 \times 4 = \underline{\quad}$
<p><b>Font treatment</b></p>	<p>Verdana</p> <p>Print base: Minimum font size is 18 points. Computer based: Illustrators scale the font up to 26 points</p> <p>The font size may be below 18 points if the word(s) do not need to be read to the student for the student to answer an item.</p> <p>Italics are <b>not</b> used. Illustrators avoid handwriting fonts or decorative typeface.</p> <p>See “Bar Graphs,” “Labels” and “xy Coordinate Grids.”</p>	<p>A graphic of a calendar is being used as an object. The student does not need to read the days of the week to answer the item.</p>

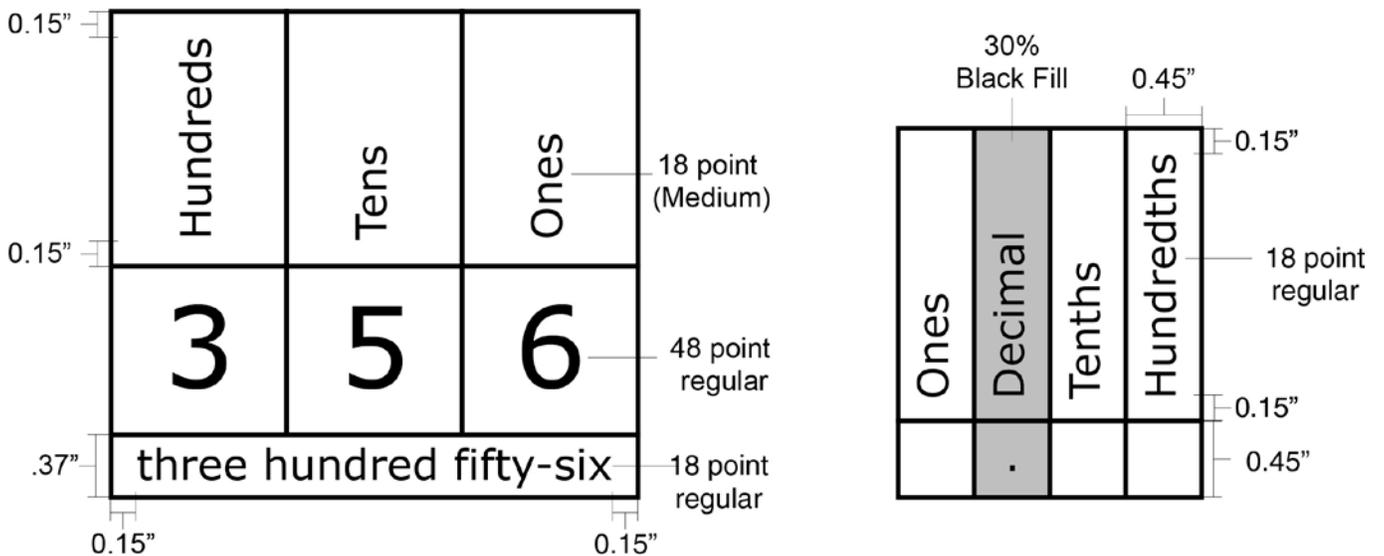
STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Keys</b></p>	<p>Keys are a single box.</p> <p>The font size is 21 points.</p> <p>The word “<b>Key</b>” is boldface and centered.</p>	
<p><b>Labels</b></p>	<p>Titles of a diagram, shape, or graph = boldface, title case</p> <p>Labels identifying a part of a diagram = regular, sentence case</p> <p>Each label has a lead line from it to the corresponding part of the diagram. These lines should <b>not</b> cross each other or mask content in the diagram. Lead lines are 1.5 points.</p> <p>Italics are not used.</p> <p>Angles = boldface</p> <p>Titles = boldface, title case</p> <p>Points on a coordinate grid = boldface, uppercase</p> <p>Equations on or next to a coordinate grid = variable is boldface with the remaining text regular</p> <p>Variables = boldface, uppercase</p> <p>Vertices = boldface, uppercase</p> <p>Labels for fraction bars are placed on the right of the bar.</p> <p>See “Tables,” “Bar Graphs,” and/or “xy Coordinate Grids.”</p>	<p><b>Parts of a Flower</b></p>  

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Line Weight</b></p>	<p>For line art, the minimum line weight is 2 points. The maximum line weight is 4 points.</p> <p>A 1-point line weight for may be used for figure art, especially faces.</p> <p>Shapes used in Math are 3 points.</p> <p>Dashes have a 2-point line weight with an 8-point dash and 8-point gap.</p> <p>Line weight must be consistent across the different graphic parts (stem, options) in an item.</p> <p>See “Tables,” “Bar Graphs,” and “xy coordinate grids” for further rules.</p>	
<p><b>Money</b></p>	<p>Coins and dollars should be “real-life” in size. Dollar bills can be scaled down if necessary.</p> <p>Illustrators use the coins that show the profile. The newer coins with the <math>\frac{3}{4}</math> perspective of the face are <b>not</b> used.</p>	
<p><b>Nets</b></p>	<p>Interior grids lines:1.5-point line weight</p> <p>Outer lines:3-point line weight</p> <p>Dashes: 3-point line weight, 6-point dash, 6-point gap with a rounded end cap</p>	

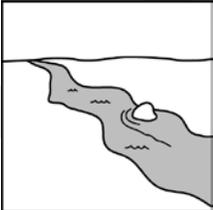
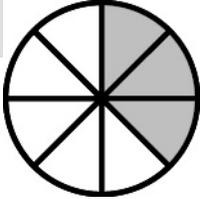
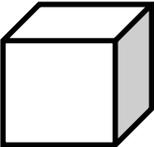
STYLE ELEMENT	STYLE RULES
<b>Number lines</b>	Labels indicating a point are Verrdana, 18 points and boldface. Zereos are boldface only when it is the in the center of the number line.



<b>Place Value Charts</b>	Numerals used in Tier 1 and 2 charts are 48 points. Numerals used in Tier 3 and 4 charts ae18 points.
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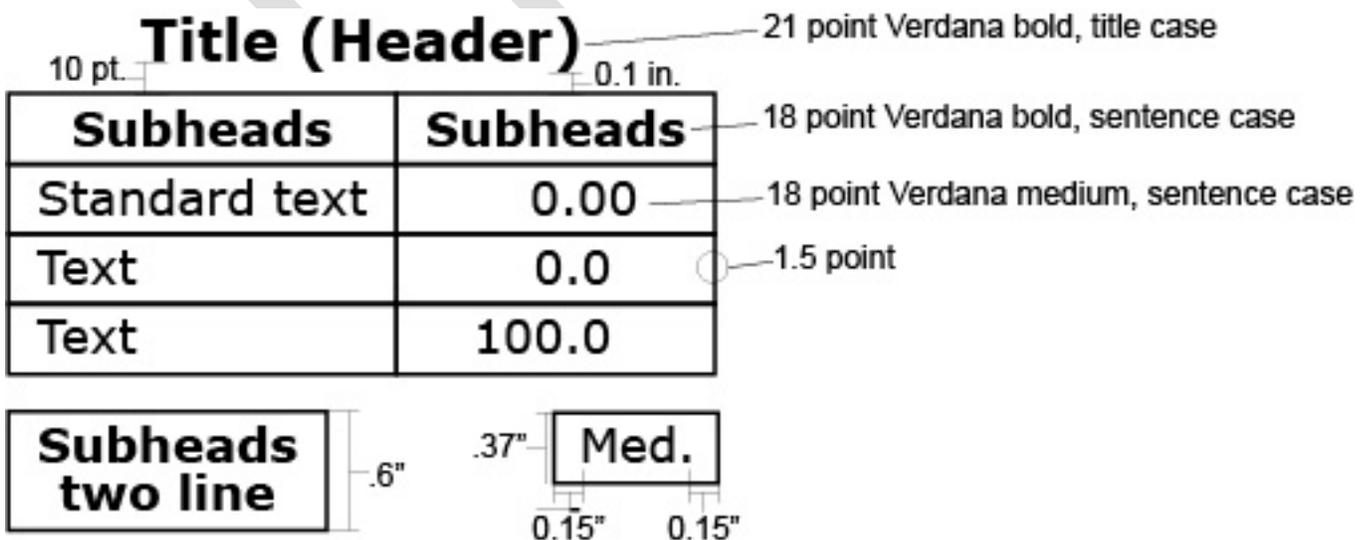


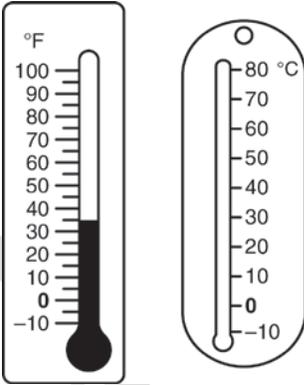
STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<b>Plausible distractors within option art</b>	The distractors should be associated with the stem graphic.	<i>The stem asks “What is the girl sleeping on?” The stem graphic shows a girl in a bedroom setting, not simply a girl in bed. The options are pulled from the setting (e.g., bed, lamp, desk).</i>
<b>Parallelism within option art</b>	Options must not be distracting or attractive to the student. An option graphic can’t stand-out by being very different from the other option graphics.  Often the solution is to have all three options similar or have each option very different.	A. Boy playing soccer B. Boy swinging on a swing set C. Boy smiling OR A. Soccer ball and net B. Swing set C. Boy smiling
<b>Orientation</b>	Both landscape and portrait orientations are permissible, but orientations must be consistent within an option set.	
<b>People/Figures</b>	The default emotion is happy (smiling) unless the item or passage specifies otherwise.  Clothing should be modest. MSAA state partner climates vary depending on location and the season.  The item will indicate if particular attire is needed.  “Amputated” body parts should be avoided.  Showing the entire human body is preferable. However, depending upon sizing constraints, it is permissible to show the body from the knees up, the waist up, or the shoulders up.  The view of the body must be the same in all options or different for each option.  The age of the person should be appropriate for the grade level.  Different races, ethnicities, physical abilities, and adult ages should be represented.	For warm weather use shorts, short sleeves, tank tops, sandals, etc. or for colder weather use sweaters, jeans, coats, hats, boots, etc.  Police uniform, lab coat for a doctor, etc.  Children shown in grade 4 assessments should be 9–10 years old, not teenagers.
<b>Perspective</b>	A straight-on view is preferred. A profile view is also acceptable.  Illustrators avoid a 3/4-over view, bird’s-eye view, and other less conventional perspectives.  For options, it is preferable each graphic is drawn in the same perspective.	

STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Pictographs</b></p>	<p>For line weights and font treatment, see the style rules for tables.</p> <p>Missing objects in pictographs are indicated by a gray box. The gray box needs to be large enough to contain the objects presented as the option choices.</p>	<p><b>Objects in Haley's Backpack</b></p> 
<p><b>Photographs</b></p>	<p>Photographs may be used only if necessary for the item/passage.</p> <p>Photographs are grayscale</p> <p><b>Credit lines: TBD</b></p>	<p>a historical event</p>
<p><b>Placement of objects</b></p>	<p>The illustrator determines the best way to position the art in the space allowed.</p> <p>The Specialists (usually for Mathematics) are required to give instructions if they need a specific arrangement.</p>	<p>"Arrange ten cubes in two rows and five columns."</p>
<p><b>Plants and animals</b></p>	<p>Use species commonly found in the United States (unless the item requests a specific species).</p>	<p>A fish found in the Great Lakes may be more appropriate than a species found in the Caribbean Sea.</p>
<p><b>Shading</b></p>	<p>For ELA, shading is to be used for the purposes of visual clarity, not aesthetics.</p> <p>For Math, shading may be used as follows:</p> <ul style="list-style-type: none"> <li>to indicate parts in a fraction model</li> <li>cutout tiles</li> <li>histograms</li> <li>a face on a 3-D object</li> <li>place value charts</li> </ul> <p>If shading is needed, the contrasts between the percentages of black should be strong.</p> 	   <p>0.75</p> 

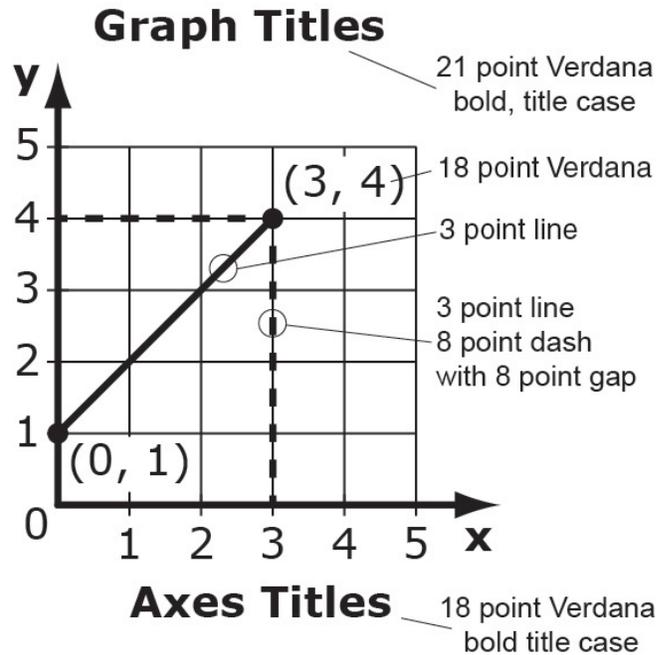
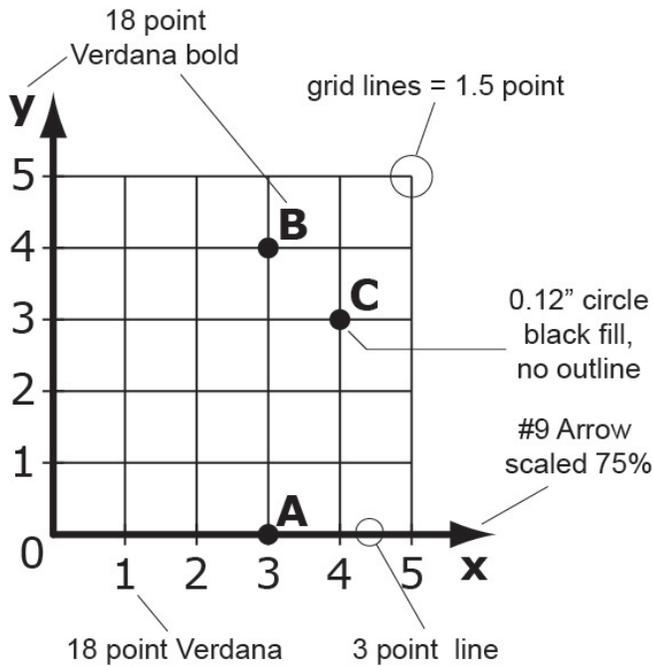
## Tables, Tally Charts and Pictographs

STYLE ELEMENT	STYLE RULE(S)
<b>Cell and column sizes</b>	Cell and column sizes should be uniform where possible. The exception to this rule is when the proportions of the information displayed in the columns varies enough to cause excessive amounts of white space in those columns that have less information or smaller text objects.
<b>Text alignment</b>	Tables must have titles (headers).  Titles are centered and aligned to the vertical center of the table.  Tables must never be narrower than the title text.  The widest text object in a column is centered in its cell. All other text in that column is left justified and aligned left relative to the widest text object.
<b>Numeral alignment</b>	The widest number object in a column is centered in its cell. All other numerals in that column are right justified and aligned right, relative to the widest number object.  Numerals that include decimals are decimal aligned relative to the widest number in that column. For money, dollar signs are not aligned vertically; dollar amounts are only aligned by decimal points.  For a column that includes mixed numbers or a combination of whole numbers, decimals and fractions, each numeral is centered individually within the cell.
<b>Missing values</b>	Missing values are indicated by a horizontal line.
<b>Picture graphs and tally charts</b>	Pictograph cells will be at least as high as the minimum height. 0.15" space will be maintained between the pictograph objects and the cell borders and also between each other.



STYLE ELEMENT	STYLE RULE(S)	EXAMPLE(S)
<p><b>Thermometers and temperature</b></p>	<p>There is no space between the degree symbol and the C or F (15 °C or 78 °F).</p> <p>The zero on all thermometers is boldface.</p> <p>Illustrators add °C or °F to the thermometer.</p>	
<p><b>Units of measurement</b></p>	<p>Units are spelled out whenever possible.</p> <p>Units of measure may be abbreviated if there is not enough space to spell them out.</p> <p>In tables and graphs, units of measurement do not need to be repeated. Units should be enclosed in parentheses and placed next to the title/heading or on a separate line below.</p> <p>Units are lowercase.</p>	<ul style="list-style-type: none"> <li>• Time Spent at School (hours)</li> <li>• Amount Earned (dollars)</li> </ul>

STYLE ELEMENT	STYLE RULES
<b>x/y coordinate grids and line graphs</b>	Grids should never exceed a 10 × 10 grid. Intervals of labels may vary, but the grid itself should be 10 × 10 or smaller.
	Graph and axes titles are title case and boldface.
	Axes numbers are regular.
	For ordered pairs, a space is added after the comma: (2, 0) not (2,0).
	Grid lines and arrow tips and extend beyond the axes lines.
	Axes must be labeled.
	Line graphs must have titles.
The origin must be labeled with a zero.	
Letters, points, variables, numbers, and axes labels should <b>not</b> be italicized. If treatment is required (e.g., for a variable), boldface is used.	



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## Technical Requirements

ELEMENT	SPECIFICATION
Image dimensions	TBD (width and height)
Graphic file size	TBD

draft



## **(PROPOSED) Test Administration Protocol for the Providing the Sign Language Accommodation**

Although it is understood that the nature of this assessment requires individualized delivery in the communication method familiar to the student, individuals providing the sign language accommodation for the MSAA assessment must follow these procedures during testing to ensure standardization of delivery.

### ***Procedures for Providing the Sign Language Accommodation***

1. Signers must be trained on test administration policies by local test coordinators, as indicated in the Test Administration Manual (TAM). Individuals providing the sign language accommodation must sign a security agreement.
2. Signers should use signs that are conceptually accurate, with or without simultaneous voicing, translating only the content that is presented, without changing, emphasizing, or adding information. Signers may not clarify (except for test directions), provide additional information, assist, or influence the student's selection of a response in any way. Signers must do their best to use the same signs if the student requests a portion repeated.
3. Signers must sign (or sign and speak when using Sim-Com [Simultaneous Communication]) in a clear and consistent manner throughout the test administration, using correct production, and without inflections that may provide clues to, or mislead, a student.
4. Signers should emphasize only the words printed in boldface, italics, or capital letters and inform the student that the words are printed that way. No other emphasis or inflection is permitted.
5. Signers may repeat passages, test items, and response options, as requested, according to the needs of the student. Signers should not rush through the test and should ask the student if they are ready to move to the next item.
6. Signers may not attempt to solve mathematics problems, or determine the correct answer to a test item while signing, as this may result in pauses or changes in inflection which may mislead the student.
7. Signers must use facial expressions consistent with sign language delivery and must not use expressions which may be interpreted by the student as approval or disapproval of the student's answers.
8. Test administrators must be familiar with the student's IEP, and should know in advance which accommodations are required by the student. Test administrators must be aware of whether a student requires additional tools, devices, or adaptive equipment that has been approved for use during the test, such as a magnifier, closed circuit television (CCTV), abacus, braille, slate, stylus, etc., and if use of these tools impacts the translation of the test, the signer should be made aware of this.
9. Upon review of the test, if a human signer is unsure how to sign and/or pronounce an unfamiliar word, the signer should collaborate with a content expert who is fluent in sign language (if available) which sign is most appropriate to use. If the signer is unable to obtain this information before the test, the signer should advise the student of the uncertainty and spell the word.

10. When using a sign that can represent more than one concept or English word, the signer must adequately contextualize the word, in order to reduce ambiguity. The signer may also spell the word after signing it, if there is any doubt about which word is intended.
11. Signers must spell any words requested by the student during the test administration.
12. When test items refer to a particular passage part, resign the passage part before signing the question and answer choices. For example, the signer should sign, "Question X refers to the following passage part....," then sign the lines to the student, followed by question X and the response options.
13. When signing selected response items, signers must be careful to give equal emphasis to each response option and to sign options before waiting for the student's response.
14. When response choices will be scribed, the signer should inform the student at the beginning of the test that if the student designates a response choice by letter only ("B", for example), the signer will ask the student if he/she would like the response to be signed again before the answer is recorded.
15. If the student chooses an answer before the signer has signed all the answer choices, the human signer must ask if the student wants the other response options to be signed.
16. After the signer finishes signing a test item and all response options, the signer must allow the student to pause before responding. If the pause has been lengthy, ask: "Do you want me to sign the question or any part of it again?" When signing questions again, signers must avoid emphasis on words not bolded, italicized, or capitalized.
17. Signers should refer to the Mathematics Sign Language Glossary for technical vocabulary for consistency in providing the accommodation.

### **Sign-System-Specific Procedures**

Signers must deliver the accommodation in the sign language or communication mode used by the student according to the student's IEP.

### ***American Sign Language (ASL)***

Signers delivering the accommodation via ASL must use appropriate ASL features (including signs, sentence structure, non-manual markers, classifiers, etc.) while protecting the construct being measured by the assessment. Although it is necessary for a signer to use appropriate non-manual markers to ensure proper delivery of test content in ASL, the signer must be careful not to cue students while doing so.

### ***English-Based Sign Systems (PSE, Sim-Com, etc.)***

Signers delivering the accommodation via an English-based signing system must use the features of the communication mode used by the student. Human signers delivering the test in Signing Exact English (SEE2) should use the rules of that signing system (e.g. specific signed vocabulary, prefixes, suffixes, etc.). Signers delivering the test in English-based signing systems (PSE, Sim-Com, etc.) should use the rules of those signing systems (conceptually accurate signs, English word order, etc.), with or without simultaneous voicing.

***Mathematics Sign Language Glossary***

Human signers should refer to the online Mathematics Sign Language Glossary for guidance on how to deliver mathematic symbols and terms. The guidance provided in the glossary provides a standardized approach for students who use sign language accommodations. The glossary provides signs that can be used for both ASL and English-Based Sign Systems.

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