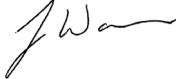




DIRECTOR  
OFFICE OF STATE ASSESSMENT

May 2022

To: District Superintendents  
Superintendents of Schools  
Principals of Public, Religious, and Independent Schools  
Charter School Leaders  
Science Coordinators  
Elementary- and Intermediate-level Science Teachers

From: Zachary Warner 

Subject: Required Investigations for the Elementary- and Intermediate-level Science Tests

### General Information

The Elementary- and Intermediate-level Science Tests will be administered in Grades 5 and 8, respectively, for the first time in Spring 2024. These tests are designed to measure knowledge and skills contained in New York State P-12 Science Learning Standards. The tests are administered as written examinations in the spring of each school year and consist of both multiple-choice and constructed-response (i.e., open-ended) questions. In order to prepare for these tests with authentic, hands-on laboratory experiences, students will participate in a series of required activities called *Investigations*. Like the written tests, the Investigations are aligned with the New York State P-12 Science Learning Standards but provide the opportunity for performance-based assessment of student science knowledge and skills. The Investigations are designed to be embedded into instruction and can be offered any time during the school year, dependent on when teachers cover the particular Learning Standards assessed.

The Investigations are intended for use by New York State teachers for course work and examination preparation in the classroom. Permission is hereby granted to teachers and nonprofit organizations or institutions to reproduce these materials in limited quantities for their own use, but not for sale, provided copyright notices are retained as they appear in this publication. This permission does not apply to mass distribution of these materials, electronically or otherwise.

The Teacher's Guide for each required Investigation provides an estimate of the time needed to complete the activities. The actual times needed to complete the required laboratory activities may vary depending on the length of scheduled laboratory periods, whether lab questions are to be completed in class or outside of class as homework, and if teachers choose to supplement the Investigation with additional instruction or activities. Teachers must make students aware of any specific safety precautions included in the teacher instructions for each required Investigation.

## Required Investigations

Teachers must be certain that all students successfully complete the required Investigations before the administration of the Elementary- or Intermediate-level Science Tests. Completion of the Investigations prepares students for the written test by providing a hands-on opportunity to demonstrate attainment of science knowledge and skills that also will be assessed on the written test. At least 15% of the questions on the written test will measure content related to the performance expectations measured by the Investigations. Other questions will assess concepts related to the activities undertaken by students in the Investigations.

Although there are benefits to completing all Investigations in the school year leading up to the written test, this is not required and the decision on when to complete the Investigations is left to local discretion. For example, if a school chooses to teach life science during Grade 7, students may complete the relevant Investigation that year rather than during Grade 8 if the school determines this to be the appropriate approach.

The four required Investigations for Elementary-level Science and the primary performance expectations measured by each are:

- Structure and Properties of Matter: What's in the Bag? (PE: 5-PS1-4)
- Weather and Climate: Cloud in a Bottle (PE: 3-ESS2-3)
- Energy: Light It Up (PE: 4-PS3-4)
- Life Cycles and Traits: Circle of Life (PE: 3-LS1-1)

The four required Investigations for Intermediate-level Science and the primary performance expectations measured by each are:

- Structures and Properties of Matter: All Mixed Up (PE: MS-PS1-8)
- Energy: Cool It! (PE: MS-PS3-4)
- Weather and Climate: Air Mass Matters (MS-ESS2-5)
- Structure Function and Information Processing: It's Alive? (MS-LS1-1)

Each of the required Investigations includes the following components:

- Teacher Directions
- Student Directions
- Student Answer Packet
- Answer/Scoring Key
- Scoring Rubric

The Student Directions and the Student Answer Packet must be duplicated in order to provide a copy for each student. Students should record all data and answers in the Student Answer Packet which must be retained by the school as evidence of the student's successful completion of the activity and should be kept on file for at least six months following the date of the test. A copy of this packet may be provided to the student in order to prepare for the written test. The Answer/Scoring Key and Scoring Rubric provide guidance on appropriately rating the

Investigations. However, all aspects of grading the required Investigations and their use in course grades are at the discretion of the teacher. Scores on the Investigations will not be reported to the State or included in the students' final test scores.

Districts are responsible for providing the equipment and supplies necessary to implement the required Investigations. The activities were specifically designed to require relatively simple and inexpensive materials. Estimated costs will vary, with some requiring minimal startup cost and others requiring a slightly higher initial investment. An equipment and materials list is provided at the end of this memo as well as in the Teacher's Directions for each Investigation.

### **Requesting Digital Copies of the Investigations**

The Investigations will be made available to schools as digital copies only. Principals will be able to access and download the files using the exam ordering portal through which they make exam requests. Digital copies of the Student Directions and Student Answer Packets in alternate languages and hard copies in Unified English Braille may be requested by contacting the Office of State Assessment at [emscassessinfo@nysed.gov](mailto:emscassessinfo@nysed.gov).

### **Equipment and Materials List**

#### Elementary-level Science

- Lab Equipment
  - 50mL and 100 mL graduated cylinders (1 for every 2 students)
  - Stopwatch (1 for every 2 students)
  - Protective eyewear (1 per student)
  - Thin Liquid Crystal Temperature Strip with Fahrenheit Scale (1 for every 2 students)
  - 2-Battery holder size D (1 for every 2 students)
  - 6" or 12" connector wires with alligator clips (1 set of 10 for every 2 students)
  - 1.5-volt light bulb (1 set of 3 for every 2 students)
  - Mini light bulb holders (i.e., lamp receptacle; 1 set of 3 for every 2 students)
  - Switch for opening and closing circuit (1 for every 2 students)
  - Matches (for teacher use only)
  
- Materials for Students
  - Resealable quart-size bag
  - Antacid tablet (e.g., Alka-Seltzer)
  - Plastic cup
  - Post it note
  - Paper towels
  - Small dish
  - 2-liter clear soda bottle
  - Water (hot, cold, and room temperature)
  - Wooden coffee stirrers or popsicle sticks
  - 1.5-volt D cell battery (1 set of 2 for every 2 students)
  - Glue stick (1 per student)
  - Three envelopes containing drawings of organisms (1 set per student)

## Intermediate-level Science

- Lab Equipment
  - Microscope (optimally 1 for every 2 students)
  - 120 mL (4 oz) container with lid (1 for every 2 students)
  - Petri dishes with lids (1 set of 3 for every 2 students)
  - Protective eyewear (1 per student)
  - Magnets
  - Celsius thermometer (1 for every 2 students)
  - 100 mL graduated cylinder (1 for every 2 students)
  - Hot plate (1 for teacher use)
  - 500 mL Beakers (1 set of 2 for every 2 students)
  - Tweezer or forceps or wooden splints (class set)
  - Eye dropper or pipette (class set)
  - Filter funnel (1 for every 2 students)
  - Microscope Slides (5 of each slide)
    - Elodea; Onion; Cheek (squamous epithelial); Paramecium; Euglena; Yeast; Human Nervous Tissue (multipolar neuron); Hair; Thread; Sand
  
- Materials for Students
  - Paper towels
  - Masking tape
  - Substances: water, iron fillings, black sand, salt, aquarium gravel, sugar, white/light colored sand, lentils, and mineral oil
  - Styrofoam cup with lid
  - Filter paper (1 for every 2 students)
  - Cups
  - Stainless steel metal washers (mass of one washer should be approximately 20 grams and uniform in size)
  - 2-liter soda bottle
  - Calculator (1 per student)