

# BOCES 4 Science Professional Learning

BOCES 4 Science is committed to ensuring that science unit training is widely available. Curriculum-Embedded Professional Learning about the NYSSLS is included with all B4S unit training and available for FREE to districts using the corresponding science unit.

## ELS AND ILS INVESTIGATIONS PROFESSIONAL LEARNING

The Investigations are hands-on laboratory experiences that prepare students for the written Elementary- and Intermediate-Level Science Tests that will be administered in Grades 5 and 8, respectively, in Spring 2024. At least 15% of the questions on the written tests 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.

The Investigations are designed to be embedded into instruction and can be offered any time prior to the written tests. Teachers may administer them when the particular learning standards assessed within each Investigation are addressed by their instruction or at another time of their choosing. The Investigations provide hands-on opportunities to demonstrate attainment of science knowledge and skills but are not considered a State test; rather, they are locally-administered performance-based tasks.

To assist educators in their understanding of and preparation for working with the Investigations, BOCES 4 Science is offering kits that correspond to each of the four ELS and four ILS Investigations, along with complementary professional learning. Our kits contain the materials specified by NYSED for each Investigation, organized for ease of administration. Through our professional learning, teachers will understand the recommended approaches for introducing their students to the activities within the Investigations in order to provide them with the best opportunities to demonstrate their science learning.

For more information about B4S Investigations Kits and Professional Learning, please contact Steven Montemarano, Director of BOCES 4 Science, at [smontema@monroe2boces.org](mailto:smontema@monroe2boces.org).

## CURRICULUM-EMBEDDED PROFESSIONAL LEARNING

Teaching science is changing. The New York State Science Learning Standards (NYSSLS) provide guidance for new curriculum and the shifts in instruction that are integral to it. When teachers attend training sessions on each unit, they dive into the appropriate NYSSLS topic. The lessons in the unit are written to be three-dimensional, and the margin notes in the Teacher's Guides focus attention on those 3-D elements. In addition, the training sessions emphasize how instruction has shifted with the new standards. BOCES 4 Science educators are always ready to provide follow on support after these sessions as teachers and students embark on this new adventure.

BOCES 4 Science Embedded Professional Learning courses, as well as all supporting materials on the BOCES 4 Science website (<http://www.boces4science.org>), are free with the use of the corresponding unit. Upon completion of a B4S Professional Learning course, participants will earn the number of CTLE credits appropriate for the length and complexity of the training. In-person and online formats are offered. Please contact Lisa Zeznick, B4S Assistant Director, at [lzeznick@monroe2boces.org](mailto:lzeznick@monroe2boces.org) to discuss format and date preferences to meet your needs.



Grade Level	Unit Name Unit Contact Email	Unit Description
Kindergarten	<b>Weather for Kindergarten</b> Kristy Pincelli <a href="mailto:kpincell@monroe2boces.org">kpincell@monroe2boces.org</a>	In this unit of study, students apply an understanding of the effects of the sun on the Earth's surface. Students use patterns, variations in local weather, and weather forecasting to prepare for and respond to severe weather.
	<b>Pushes &amp; Pulls</b> Kristy Pincelli <a href="mailto:kpincell@monroe2boces.org">kpincell@monroe2boces.org</a>	In this unit of study, kindergarteners explore the forces of pushes and pulls as they enjoy a visit to the playground. They learn how to describe the position/motion of objects and the effects of forces on those objects.
	<b>Worm Scouts</b> Kristy Pincelli <a href="mailto:kpincell@monroe2boces.org">kpincell@monroe2boces.org</a>	In this unit of study, students explore why piles of worms are evenly spaced along the center of a road on a rainy day. Kindergarteners ask questions and observe a classroom compost bin of red worms in order to investigate this phenomenon.

# BOCES 4 Science Professional Learning

Grade Level	Unit Name Unit Contact Email	Unit Description
Grade 1	<b>A Bunny's Life</b> TBD	In this unit of study, students act as scientists as they observe how young rabbits look similar to and different from their parents. Students continue to study rabbits, and other animals, when they look at patterns of behavior displayed by parents and their offspring to ensure the survival of the offspring.
	<b>Sending Messages with Light and Sound</b> Kathryn Jensen kjensen@monroe2boces.org	In this unit of study, students act as engineers when they design a device that uses light or sound to send a message. To prepare for this task, students plan and carry out investigations on what causes sound and the effect of placing an object in the path of a beam of light.
	<b>Sky Patterns</b> Kathryn Jensen kjensen@monroe2boces.org	In this unit of study, students take on various missions as they investigate different sky patterns. These missions include tracking the Sun to predict where it will be at different times of the day and checking out sunsets to discover the seasonal pattern of the amount of daylight throughout the year.
Grade 2	<b>Save the Bees!</b> Antonietta Quinn aquinn@monroe2boces.org	In this unit of study, students investigate the real-world environmental issue of global loss of the bee population and how it is affecting our world through Dr. Seuss's famous environmental book, The Lorax. The lessons in the unit help students develop an understanding of the needs of plants and animals and how plants and animals depend on each other for survival.
	<b>Earth's Features</b> Sharon Bassage sharon.bassage@wflboces.org	In this unit of study, students are asked to help "Tina the Traveler" decide where to live in the United States. Throughout the unit, students will receive postcards from Tina to learn about land and water features, mapping skills, quick and slow events that affect Earth, and then design a solution to slow or prevent wind or water from changing the shape of the land.
	<b>Made of Matter</b> Sharon Bassage sharon.bassage@wflboces.org	In this unit of study, students explore concepts about matter, its properties, and how it is used. Students follow Ada and her friends, who have instruments made from pieces of trash, to deeply analyze the matter used to make each instrument.
Grade 3	<b>Investigating Weather &amp; Climate</b> TBD	In this unit of study, students investigate the phenomenon of weather, the water cycle, weather-related hazards, and climates in different regions of the world. The class collaborates to plan and conduct an investigation on the weather using weather tools.
	<b>Where Are the Wolves?</b> Antonietta Quinn aquinn@monroe2boces.org	In this unit of study, students learn about how bringing wolves back to Yellowstone National Park changed that park's ecosystem. Students discover that wolves no longer live in New York State and are posed with the question, "Should wolves be brought back to Adirondack Park in New York State?"
	<b>Invisible Forces</b> Antonietta Quinn aquinn@monroe2boces.org	In this unit of study, students explore balanced and unbalanced forces on the motion of an object and how data collected about an object's motion can predict future motion. Cause and effect relationships of electric (static electricity) and magnetic interactions are explored through questioning strategies.
	<b>Generations of Butterflies</b> Antonietta Quinn aquinn@monroe2boces.org	In this unit of study, students explore the phenomenon of monarch migration to Mexico. Lessons within the unit help students figure out that a special generation of monarchs migrate to Mexico over several months even though their adult life span is typically two to three weeks.

# BOCES 4 Science Professional Learning

<b>Grade 4</b>	<p><b>Earth Processes in NYS</b> Kathryn Jensen kjensen@monroe2boces.org</p>	<p>In this unit of study, students try to figure out the origin of a bone that is found in local soil. Could it have belonged to a dinosaur? The mystery bone provides an introduction to the main ideas in this unit, including evidence of changes in a landscape over time, the effects of weathering and erosion, and patterns in Earth's features.</p>
	<p><b>Riding the Waves of Information</b> Sharon Bassage sharon.bassage@wflboces.org</p>	<p>In this unit of study, students learn about waves and the properties of amplitude, wavelength, and energy. With these properties, students explore how waves move objects and transmit information for both sound (using Morse code) and light (using binary code).</p>
	<p><b>Powering Thru the Fair</b> Kristy Pincelli kpincell@monroe2boces.org</p>	<p>In this unit of study, students take a virtual field trip to the NYS Fair in order to investigate the energy used there. They follow a map to visit the roller coaster, ball toss, bumper cars, etc. Students explore ideas such as speed, collisions, and energy conversions.</p>
	<p><b>A Walk in the Park</b> Kathryn Jensen kjensen@monroe2boces.org</p>	<p>In this unit of study, students model how different animals in a park process information received by their senses and how they react to this information. A special emphasis is placed on the sense of sight, as students develop models to understand how animals, including humans, see when light reflected from objects enters their eyes.</p>
<b>Grade 5</b>	<p><b>Deer, Deer Everywhere!</b> Kristy Pincelli kpincell@monroe2boces.org</p>	<p>In this unit of study, matter and energy in organisms and ecosystems are explored through the lens of deer overpopulation. Students take on the role of NYS Department of Environmental Conservation researchers charged with the task of creating a public service announcement on this issue.</p>
	<p><b>Toys Matter</b> Kristy Pincelli kpincell@monroe2boces.org</p>	<p>In this unit of study, students are welcomed to their day at the toy company, Toys Matter. Throughout the unit, students will plan and carry out a series of investigations in which they will work with a large variety of materials.</p>
	<p><b>Got Water?</b> Kristy Pincelli kpincell@monroe2boces.org</p>	<p>In this unit of study, students investigate Earth's systems by taking on the role of interns at their local Got Water? facility. Students will explore and model interactions among Earth's atmosphere, biosphere, geosphere, and hydrosphere.</p>
	<p><b>Earth &amp; Space Explorers</b> Kathryn Jensen kjensen@monroe2boces.org</p>	<p>In this unit of study, students are trained to become Earth and Space explorers. They are challenged to find a fictional scientist by investigating clues about her disappearance. Students engage in lessons that provide support for the argument that differences in the apparent brightness of the Sun, compared to other stars, are due to their relative distances from Earth.</p>
<b>Middle School</b>	<p><b>Waves &amp; Electromagnetic Radiation</b> Kathryn Jensen kjensen@monroe2boces.org</p>	<p>In this unit of study, students create and revise their own models of how light travels, is reflected, absorbed and transmitted. Students contrast white light with the light from a laser pointer. Students learn about frequency, wavelength, and the energy of a wave by contrasting the properties of light from a laser with those of the light from a flashlight or a light bulb.</p>