



BOCES 4 SCIENCE is a new science program service developed through a partnership between Monroe 1, Monroe 2, Genesee Valley and Wayne Finger Lakes BOCES.

www.boces4science.org

**2018-2019
Leasing Catalog**

Each summer from 2016 - 2018, NYS teachers in the BOCES 4 region spend a week assisting the BOCES 4 Science team in writing unit outlines for new science units based on the New York State Science Learning Standards (NYSSLS). During the school year, the outlines are developed into science units and piloted in classrooms. The new units are available for lease during January of the following school year.

Listed below are units developed and written by the BOCES 4 Science team and NYS teachers in the BOCES 4 region beginning in the summer of 2016. These units are aligned to the content of New York State Science Learning Standards. Each lesson/unit incorporates 3-Dimensional instruction (For information on 3-D instruction: <http://www.nextgenscience.org>). Specific information on the dimensions addressed in each unit, see the chart below.

Units Available for Ordering:

Grade Level	Title of Unit	Instructional Days	Description	Science and Engineering Practices	Crosscutting Concepts
Kinder- garten	Weather for Kindergarten NYSSLS: Weather & Climate; Matter & Its Interactions	20 days and ongoing through- out the year	In this unit of study, students apply an understanding of the effects of the sun on the Earth's surface. Students develop an understanding of patterns and variations in local weather and the use of weather forecasting to prepare for and respond to severe weather.	<ul style="list-style-type: none"> ● <i>asking questions</i> ● <i>analyzing and interpreting data</i> ● <i>developing and using models</i> ● <i>planning and carrying out investigations</i> ● <i>designing solutions</i> ● <i>obtaining, evaluating, and communicating information</i> 	<ul style="list-style-type: none"> ● <i>patterns</i> ● <i>cause and effect</i> ● <i>structure and function</i> ● <i>interdependence and influence of engineering, technology and science on society and the natural world</i>
Grade 1	Sending Messages with Light & Sound NYSSLS: Waves – Light and Sound	32 days	In this unit, young students behave as scientists as they plan and carry out investigations to provide evidence that vibrating materials make sound. Students realize the cause and effect relationship between light and our ability to see. Through a series of activities, students conduct investigations, make observations, and communicate information on how light interacts with different materials. Students look for patterns in their data focusing on how we use sound and light to communicate nonverbally. The unit culminates in an engineering project in which students work collaboratively to design and build a device that solves the problem of communicating over a distance.	<ul style="list-style-type: none"> ● <i>asking questions</i> ● <i>analyzing and interpreting data</i> ● <i>developing and using models</i> ● <i>planning and carrying out investigations</i> ● <i>designing solutions</i> ● <i>obtaining, evaluating, and communicating information</i> 	<ul style="list-style-type: none"> ● <i>patterns</i> ● <i>cause and effect</i> ● <i>influence of engineering, technology and science on society and the natural world</i>
Grade 2	Save the Bees! NYSSLS: Interdepend- ent Relationships in Ecosystems	35 days	This unit provides experiences to help students develop an understanding of the relationships within an ecosystem. Using Dr. Seuss' famous environmental book, <i>The Lorax</i> , as a theme of the instruction, students investigate the real world environmental issue of the global loss of the bee population and how it is affecting our world. 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. Students also compare the diversity of life in different habitats. As students become more knowledgeable about the issue of bee population decline, they are able to present the issue to others as a culminating activity of the unit. An engineering project involving the design of a hand pollinator allows students to devise a solution to the decline in bee pollination.	<ul style="list-style-type: none"> ● <i>analyzing and interpreting data</i> ● <i>developing and using models</i> ● <i>planning and carrying out investigations</i> ● <i>constructing explanations and designing solutions</i> ● <i>obtaining, evaluating, and communicating information</i> 	<ul style="list-style-type: none"> ● <i>patterns</i> ● <i>structure and function</i> ● <i>cause and effect</i> ● <i>influence of science, engineering, technology and science on society and the natural world</i>

Grade Level	Title of Unit	Instructional Days	Description	Science and Engineering Practices	Crosscutting Concepts
Grade 3	Investigating Weather & Climate NYSSLS: Weather & Climate	25 days	The <i>Investigating Weather & Climate</i> unit is designed for 3 rd grade. The main topics included in this unit are investigating 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 of the weather using weather tools. Students develop a presentation about the weather and climate at a specific global location.	<ul style="list-style-type: none"> planning and carrying out investigations analyzing and interpreting data engaging in argument from evidence obtaining, evaluating, and communicating information 	<ul style="list-style-type: none"> patterns cause and effect influence of engineering, technology and science on society and the natural world
Grade 4	Riding the Waves of Information NYSSLS: Waves and Information	16 days	In this unit, students will understand that a sound wave, light wave or a wave in water all have similar characteristics. Students will describe patterns of waves in terms of amplitude and wavelength in addition to showing that waves can cause objects to move. Students will also understand that waves, which transfer energy, can travel over long distances. This energy can have coded information that can be converted or digitized into pictures (video) or sound (audio). Students will develop and use models, construct explanations and design a solution to transfer information using waves.	<ul style="list-style-type: none"> asking questions analyzing and interpreting data developing and using models planning and carrying out investigations constructing explanations and designing solutions obtaining, evaluating, and communicating information 	<ul style="list-style-type: none"> patterns cause and effect interdependence of science, engineering, technology and science on society and the natural world
Grade 5	Deer, Deer, Everywhere NYSSLS: Matter & Energy in Organisms and Ecosystems	25 days	This unit provides students with opportunities to actively engage in <i>doing</i> science by experimenting with practices, ideas, and concepts related to ecosystems and explored through the focused lens of a relevant, real world environmental issue: deer overpopulation. Each lesson in this unit is designed to provide students with the background needed to develop a scientific response to this environmental issue. At the end of this unit, students will participate in a performance task to communicate their knowledge about the deer overpopulation issue, to include a scientifically sound solution.	<ul style="list-style-type: none"> developing and using models engaging in argument from evidence constructing explanations and designing solutions obtaining, evaluating, and communicating information 	<ul style="list-style-type: none"> systems and system models energy and matter
Middle School	Waves and Electro-magnetic Radiation	25 days	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. Students also integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.	<ul style="list-style-type: none"> developing and using models using mathematics and computational thinking obtaining, evaluating, and communicating information 	<ul style="list-style-type: none"> patterns structure and function influence of engineering, technology and science on society and the natural world

2018-2019 BOCES 4 Science Kit Order Form

Kit #	Kit Title	Grade	Quantity	Cost Each	Total
<u>WITHOUT</u> Student Books/Journals					
Z045	<u><i>Weather for Kindergarten -</i></u> NYSSLS: Weather and Climate	K		\$225	
Z035	<u><i>Sending Messages with Light and Sound -</i></u> NYSSLS: Waves: Light and Sound	1		\$225	
Z015	<u><i>Save the Bees! -</i></u> NYSSLS: Interdependent Relationships in Ecosystems	2		\$275	
Z040	<u><i>Investigating Weather and Climate -</i></u> NYSSLS: Weather and Climate	3		\$250	
Z030	<u><i>Riding the Waves of Information -</i></u> NYSSLS: Waves and Information	4		\$275	
Z020	<u><i>Deer, Deer Everywhere -</i></u> NYSSLS: Matter & Energy in Organisms & Ecosystems	5		\$400	
Z023	<u><i>Structure and Properties of Matter -</i></u> NYSSLS: Structure and Properties of Matter	5		\$350-\$450	
Z025	<u><i>Waves and Electromagnetic Radiation -</i></u> NYSSLS: Waves and Electromagnetic Radiation	6-8		\$450	
<u>WITH</u> Student Books/Journals					
X045	<u><i>Weather for Kindergarten -</i></u> NYSSLS: Weather and Climate	K		\$275	
X035	<u><i>Sending Messages with Light and Sound -</i></u> NYSSLS: Waves: Light and Sound	1		\$275	
X015	<u><i>Save the Bees! -</i></u> NYSSLS: Interdependent Relationships in Ecosystems	2		\$325	
X040	<u><i>Investigating Weather and Climate -</i></u> NYSSLS: Weather and Climate	3		\$300	
X030	<u><i>Riding the Waves of Information -</i></u> NYSSLS: Waves and Information	4		\$325	
X020	<u><i>Deer, Deer Everywhere -</i></u> NYSSLS: Matter & Energy in Organisms & Ecosystems	5		\$450	
X023	<u><i>Structure and Properties of Matter -</i></u> NYSSLS: Structure and Properties of Matter	5		\$400-\$500	
X025	<u><i>Waves and Electromagnetic Radiation -</i></u> NYSSLS: Waves and Electromagnetic Radiation	6-8		\$500	
Total:					

Available Winter 2019

Kit #	Kit Title	Grade	Quantity	Cost Each	Total
	<u>WITHOUT</u> Student Books/Journals				
Z022	<u>Pushes and Pulls -</u> NYSSLS: Forces and Interactions	K		\$200-\$250	
Z005	<u>A Bunny's Life -</u> NYSSLS: Structure, Function and Information Processing	1		\$200-\$250	
Z021	<u>Earth Systems -</u> NYSSLS: Earth Systems: Processes that Shape the Earth	2		\$250-\$300	
Z013	<u>Where are the Wolves? -</u> NYSSLS: Interdependent Relationships in Ecosystems	3		\$250-\$300	
Z007	<u>Earth Processes in New York State -</u> NYSSLS: Earth Systems: Processes that Shape the Earth	4		\$250-\$300	
Z008	<u>Got Water? -</u> NYSSLS: Earth Systems	5		\$350-\$450	
	<u>WITH</u> Student Books/Journals				
X022	<u>Pushes and Pulls -</u> NYSSLS: Forces and Interactions	K		\$250-\$300	
X005	<u>A Bunny's Life -</u> NYSSLS: Structure, Function and Information Processing	1		\$250-\$300	
X021	<u>Earth Systems -</u> NYSSLS: Earth Systems: Processes that Shape the Earth	2		\$300-\$350	
X013	<u>Where are the Wolves? -</u> NYSSLS: Interdependent Relationships in Ecosystems	3		\$300-\$350	
X007	<u>Earth Processes in New York State -</u> NYSSLS: Earth Systems: Processes that Shape the Earth	4		\$300-\$350	
X008	<u>Got Water? -</u> NYSSLS: Earth Systems	5		\$400-\$500	

Shipping Information*

Understanding the Shipping Fees

***Shipping charges only apply for non-courier delivery**

KITS

Budget for Kits	Zip Code beginning with 130XX - 149XX	Zip Code beginning with 100XX - 129XX and 150XX - 157XX
\$0 - \$15,000	12%	13%
\$15,001 - \$25,000	11%	12%
\$25,001 - \$200,000	10%	11%

Examples:

1. If your budget is \$16,000, and your zip code is 13309, multiply \$16,000 by 11%. The shipping charges are \$1,760.00.
2. If your budget is \$8,000 and your zip code is 11901, multiply \$8,000 by 13%. The shipping charges are \$1,040.00.

If you would like BOCES 4 Science to pay the cost of returning leased kits, you must fill in the blanks on the lease order forms with the same dollar amount as you put on shipping blank.

Photocopy the completed forms and please mail, fax, or email to:

Monroe 1 BOCES Districts:

Monroe 1 BOCES
Debra Croce
15 Linden Park
Rochester, NY 14625
Fax #: 585-249-7809
Phone #: 585-249-7063

Debra_Croce@boces.monroe.edu

Wayne Finger Lakes BOCES and Genesee Valley BOCES Districts:

Wayne Finger Lakes BOCES
Science Dept.
Sharon Bassage
131 Drumlin Ct.
Newark, NY 14513
Fax #: 315-331-2016
Phone #: 315-332-7267

Sharon.Bassage@wflboces.org

ALL OTHER districts:

Monroe 2 - Orleans BOCES
Gina Vaccarella
38 Turner Drive
Spencerport, NY 14559
Fax #: 585-352-1157
Phone #: 585-617-2363

gvaccare@monroe2boces.org

For additional forms, go to www.boces4science.org

BOCES 4 SCIENCE

Lease Budget Worksheet for 2018-2019

District:	BOCES:
Contact Name:	
Title:	
Address:	
Telephone:	
Fax:	
Email:	
<p>Please send all appropriate order forms with your request. The 5.2 Administrative Charge is applicable to all sub-totals.</p>	

Line 1	Kit Lease Regular	_____
	Adm. Charge 5.2% (of sub-total)	+ _____
	Shipping Charge (please see shipping chart)	+ _____
	Return Shipping	+ _____
	Total	_____