

SCIENCE
RHINEBECK PRIORITIZED CURRICULUM
Grade 8
The Living Environment

Standard 4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Key Idea 1: Living things are both similar to and different from each other and from nonliving things.

Background:

Living things are similar to each other yet different from nonliving things. The cell is the basic unit of structure and function of living things (cell theory). For all living things, life activities are accomplished at the cellular level. Human beings are an interactive organization of cells, tissues, organs, and systems. Viruses lack cellular organization.

Vocabulary Note: It is understood that scientific vocabulary is an essential part of the study of science. Though not tested as in the past, students should be exposed to this vocabulary in a number of ways. Do not refrain from using this vocabulary in your daily classroom sessions, simply because it may not be tested directly. The assessment may not include the term nucleus, but will certainly ask questions regarding its function. Students need to be aware of the vocabulary to be familiar with for each unit.

*Suggested Activities: Prepare and distribute vocabulary list for each unit
Ask students to keep vocabulary in their journals or notebooks with general descriptions or definitions
Add pictorial representations
Distribute concept maps for students to complete by filling in the missing terms
Have students eventually create their own concept maps linking terms
Vocabulary bingo
Play classroom "Jeopardy"
"Ticket to Leave" - before leaving the classroom must give you (verbally or written) definition for requested term*

Guiding Questions

What is living? Non-living?
Are viruses alive? Cells?
How are viruses humans contract and computer viruses alike and different?
Which of your five senses would you not like to lose?
How are human body systems interdependent?
Why is personal hygiene important?

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Standard 4: Key Idea 1: Performance Indicator 1.2: Explain the functioning of the major human organ systems and their interactions.					
<i>Essential Knowledge/Skills (Major Understandings)</i>	<i>Priority Code</i>	<i>Essential Question</i>	<i>Classroom Ideas</i>	<i>Assessment Ideas</i>	<i>Time/Notes</i>
1.2d During respiration, cells use oxygen to release the energy stored in food. To do this, the respiratory system supplies oxygen and removes carbon dioxide; this is called gas exchange.	E	<ul style="list-style-type: none"> Why do animals need plants? 	<ul style="list-style-type: none"> Lecture/ class discussion with notes on overhead projector 	<ul style="list-style-type: none"> Class participation Quick quiz Crossword puzzle Written homework Chapter test (Teacher made) Test corrections Class notes 	

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Standard 4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Key Idea 6: Plants and animals depend on each other and their physical environment.

Background:

An environmentally aware citizen should have an understanding of the natural world. All organisms interact with one another and are dependent upon their physical environment. Energy and matter flow from one organism to another. Matter is recycled in ecosystems. Energy enters ecosystems as sunlight, and is eventually lost from the community, to the environment, mostly as heat.

Guiding Questions:

How are all organisms interdependent?
Why do terrariums work?
How are all organisms dependent on energy from the sun?

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Standard 4: Key Idea 6: Performance Indicator 6.2: Provide evidence that green plants make food and explain the significance of this process to other organisms.

<i>Essential Knowledge/Skills (Major Understandings)</i>	<i>Priority Code</i>	<i>Essential Question</i>	<i>Classroom Ideas</i>	<i>Assessment Ideas</i>	<i>Time/Notes</i>
6.2a Photosynthesis is carried on by green plants and other organisms containing chlorophyll. In this process, the Sun's energy is converted into and stored as chemical energy in the form of sugar. The quantity of sugar molecules increases in green plants during photosynthesis in the presence of sunlight.	E	<ul style="list-style-type: none"> • How plants capture the sun's light energy? • Why do plants convert glucose into sugar starch and oil? • Why do animals have to breathe • What is the role of chlorophyll in photosynthesis? • Is energy stored in strong or weak bonds? 	<ul style="list-style-type: none"> • Lecture/ class discussions with notes on overhead projector • Photosynthesis/ respiration play • Homework explanation • Visualizing being "A Bit of Energy" while listening to the story 	<ul style="list-style-type: none"> • Class participation • Quick quiz • Crossword puzzle • Written homework • Chapter test (Teacher made) • Test correction • Class notes 	
6.2b The major source of atmospheric oxygen is photosynthesis. Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis.	E				
6.2c Green plants are the producers of food, which is used directly or indirectly by consumers	N				

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Resource Materials			
Title	Source	Title	Source
ADAM software	1600 River Edge Park 3800 Atlanta, GA 30328	<u>Science Experiments in Chemistry & Physics</u> By T.K. Williams	Mark Twain Media, 1995
Science 2000 software	BOCES Center for Instructional Support (CIS) 361-5660	<u>Science Super Sleuths</u> By Wood & Walker	Instructional Fair ISBN 1-56822-843-0
<u>Life Science Enrichment Activities</u>	Merrill	<u>Science & Technology: How Things Work</u> By D. Crotts	Frank Schaffer ISBN 0-86734-799-6
<u>Teaching Resources Cells & Heredity</u>	Prentice Hall Explorer	<u>Hands On Science</u>	Instructional Fair ISBN 1-56822-131-2
<u>Doing Science</u> by Neal Glasgow	Corwin Press, Inc. ISBN 0-8-39-6477-3	<u>GEMS (Great Explorations in Math & Science)</u>	Lawrence Hall of Science, University of California Berkeley, Ca. 94720
<u>Assessing Student Outcomes</u> By Marzano, Pickering, and McTighe	ASCD 1-800-933-2723 (ISBN 0-87120-225-5)	<u>Exploring Physical Science</u> Text and Resource Book	Prentice Hall ISBN 0-13-422833-2
<u>Assessing Hands-On Science</u>	Corwin Press ISBN 0-8039-6443-9	<u>How to Assess Thoughtful Outcomes</u> By Kay Burke	IRI/Skylight ISBN 0-932935-58-3
<u>Investigate & Connect Physical Science</u>	Instructional Fair ISBN 1-56822-479-6	Interdisciplinary Thematic Unit- "Energy"	Teacher Created Materials, Inc. ISBN 1-55734-569-4
<u>50 Terrific Science Experiments Grade 5-8</u>	Instructional Fair ISBN 1-56822-658-6	<u>Physical Science</u> By Marshall & Jacobs	American Guidance Service, Inc. ISBN 0-7854-1018-X
<u>Earth Science for Every Kid</u> By Janice Van Cleave	Wiley & Sons ISBN 0-471-53010-7	<u>Physical Science-Discovering Science Series</u> By Connie Blood	Frank Schaffer ISBN 0-86734-561-6
<u>Our World</u>	Usborne Publications (ISBN 0-590-92186-X) (usually available through Scholastic, Inc.)	<u>Mr. Wizard's 400 Experiments in Science</u> By Don Herbert	Book Lab Prism Productions, 1968 ISBN 87594-012-9
<u>Creative Sciencing</u> By Devito & Krockover	Scott Foresman ISBN 0-673-52008-0	<u>333 Science Tricks & Experiments</u>	TAB Books, 1984 ISBN 0-8306-1825-2
<u>Exploring Earth Science Lab Manual</u>	Prentice Hall ISBN 0-113-80-7652-9	<u>More Science Tricks & Experiments</u>	TAB Books, 1984 ISBN 0-8306-1835-X

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<u>Integrated Science Activity Book</u>	Prentice Hall ISBN 0-13-402199-1	<u>100 Blackboard Science Activities</u>	Fearon Teaching Aids ISBN 0-86653-920-4
<u>Global Science Lab Manual</u>	Kendall/Hunt ISBN 0-8403-7485-2	<u>Concepts & Challenges in Physical Science</u>	Globe Fearon ISBN 0-835-92253-7
<u>Investigations in Science Chemistry</u>	Creative Teaching Press	<u>Science Plus-Tech & Society</u>	HBJ ISBN 0-03-074958-1
<u>Big Blast of Science</u> By Bill Nye	Addison-Wesley ISBN 0-201-60864-2	<u>Science Up to Standards</u>	Instructional Fair ISBN 1-56822-748-5