



Grade Five – Quarter 4

21st Century Skills

**“Additional Resources & Assessments
will be added throughout the year.”**

**NYS Key Ideas & Performance Indicators
Standard**

Resources
Chapters, Web Links,
Leveled Books, Technology
Tools, Nonfiction/Technical Writing

Assessments

Collaboration & Teamwork	Creativity & Innovation	Critical Thinking & Problem Solving
PHYSICAL SCIENCE		
<p>Key Idea 4: Energy exists in many forms, and when these forms change energy is conserved.</p>		
<p><u>Performance Indicator 4.1</u> <i>Describe the sources and identify the transformations of energy observed in everyday life.</i></p>	<p><u>Leveled Readers</u> <i>Changing Forms of Energy(V)</i> <i>How Energy Changes (U)</i> <i>Generating Power(T)</i></p>	<p><i>DiscoveryEducation.com</i> <i>Brainpop.com</i> <i>Exchange.SMARTtech.com</i> <u>Infinite Potential</u> – Jason.org <u>NREL</u> <u>Energy Kids</u> <u>InfinitePower</u> <u>Renewable Energy Projects</u></p>
<p>Major Understandings:</p>		
4.1a	<p>The Sun is a major source of energy for Earth. Other sources of energy include nuclear and geothermal energy.</p>	<p>Pgs. 146-147, 298-299, 306-313 BrainPOP Nuclear Energy, Solar Energy, Sun</p>
4.1b	<p>Fossil fuels contain stored solar energy and are considered nonrenewable resources. They are a major source of energy in the United States. Solar energy, wind, moving water, and biomass are some examples of renewable energy resources.</p>	<p>Pgs. 298-313, 324-325 BrainPOP Fossil Fuels, Solar Energy, Natural Resources, Gas and Oil, Wind Energy, Energy Sources, Sun, Wind</p>



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4.1d	Different forms of energy include heat, light, electrical, mechanical, sound, nuclear, and chemical. Energy is transformed in many ways.	Pgs. 306-313, 446-465, 482-493, 500-503 BrainPOP Fire, Nuclear Energy, Heat, Sound, Current Electricity, Forms of Energy, Lasers, Electricity	Transparency 55 (I) Transparency 56 (I,C) Transparency 57 (I) Transparency 59 (A) TG 447 Scaffold #2 (A,K) Pg 447 #2 (A,K) Pg 449 #1 (A,K) Pg 459 #1 (I,K) <u>Jason: Transform It</u>
4.1e	Energy can be considered to be either kinetic energy, which is the energy of motion, or potential energy, which depends on relative position.	Pgs. 442-443, 448-453 BrainPOP Potential Energy, Kinetic Energy, Newton's Laws of Motion, Fuel Cells	TG 449 Scaffold #3 (P) TG 450-451 Art Link (K) TG 451 Scaffold #2 (A,K)
<u>Performance Indicator 4.2</u> Observe and describe heating and cooling events.		<u>Leveled Readers</u> 4th LR: Heat(U) 4th LR: Energy From Heat(R) 4th LR: How Hot(R)	<i>DiscoveryEducation.com</i> <i>Brainpop.com</i> <i>Exchange.SMARTtech.com</i> <u>NASA</u>
Major Understandings:			
4.2a	Heat moves in predictable ways, flowing from warmer objects to cooler ones, until both reach the same temperature.	Pgs. 442-443, 462-465 BrainPOP Heat, Temperature	Transparency 55 (I) TG 465 Scaffold #2 (A) TG 463 Scaffold #2 (A,K) TG 462-463 My Science Journal (I, C)
4.2b	Heat can be transferred through matter by the collisions of atoms and/or molecules (conduction) or through space (radiation). In a liquid or gas, currents will facilitate the transfer of heat (convection).	Pgs. 462-465 BrainPOP Heat, Temperature	TG 465 Scaffold #3 (A,C) Pg 464 #2 & 3 (A,K)
4.2d	Most substances expand when heated and contract when cooled. Water is an exception, expanding when changing to ice.	Pgs. 354-357, 462-464 BrainPOP Heat	Transparency 58 (I)



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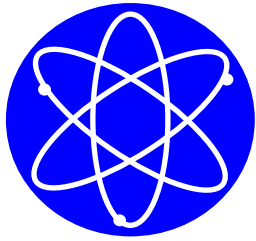
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	<u>Performance Indicator 4.4</u> <i>Observe and describe the properties of sound, light, magnetism, and electricity.</i>	<u>Leveled Readers</u> <i>Electricity(V)</i> <i>Electricity and Its Uses(W)</i> <i>The Light Bulb(U)</i> <i>4th: Electricity and Magnetism (U)</i> <i>4th: Electric and Magnetic Power(U)</i> <i>4th: Poles Apart(S)</i> <i>4th: Sound and Light (S)</i> <i>4th: Light and Sound Waves(Q)</i> <i>4th: Movie Science(S)</i>	Resources <i>DiscoveryEducation.com</i> <i>Brainpop.com</i> <i>Exchange.SMARTtech.com</i> <i>Infinite Potential – Jason.org</i>	Assessments <i>466-467 (Lab)</i> <i>474-476 (Lab)</i> <i>500-503 (Lab)</i>
	Major Understandings:			
4.4b	Light passes through some materials, sometimes refracting in the process. Materials absorb and reflect light, and may transmit light. To see an object, light from that object, emitted by or reflected from it, must enter the eye.		Pgs. 458-461 BrainPOP Rainbows, Light, Electromagnetic Spectrum, Color, Refraction and Diffraction, Eyes, Cameras, Radar, Telescopes	Transparency 57 (P) TG 459 Scaffold #1 (A,K) Pg 459 #1 (I,K) Pg 461 #1&3 (I,P)
4.4c	Vibrations in materials set up wave-like disturbances that spread away from the source. Sound waves are an example. Vibrational waves move at different speeds in different materials. Sound cannot travel in a vacuum.		Pgs. 454-457, 468-469 BrainPOP Sound, Refraction and Diffraction, Analog and Digital Recording, Hearing, Radar, Voice	Transparency 56 (I,C) Pg 455 #1 (A) TG 459 Scaffold #3 (A,P)
4.4d	Electrical energy can be produced from a variety of energy sources and can be transformed into almost any other form of energy.		Pgs. 442-443, 447, 474-477, 479-480, 482-483, 488-489 BrainPOP Current Electricity, Nuclear Energy, Fuel Cells, Electric Circuits, Solar Energy	Transparency 60 (I,C) TG 482-482 My Science Journal (I) TG 489 Scaffold #2 (A,P)
4.4e	Electrical circuits provide a means of transferring electrical energy.		Pgs. 482-491 BrainPOP Electric Circuits, Batteries, Current Electricity	Transparency 60 (I,C) Transparency 61 (I,C) TG 483 Scaffold #2 (A,K)
4.4g	Without direct contact, a magnet attracts certain materials and either attracts or repels other magnets. The attractive force of a magnet is greatest at its poles.		Pgs. 412-413, 488-489 BrainPOP Magnetism, Electromagnets, Compass	BrainPOP Experiment T-Chart 4 th : Transparency 43 (I)



PreK – 5 Science Rubric



	1	2	3	4
Inquiry	Only asks questions about an observation when prompted by the teacher.	Needs occasional prompting to ask questions about observations and investigations.	Independently asks questions about observations and investigations.	Questioning is spontaneous, consistent, and driven by curiosity. Independently asks “what if” questions.
Analysis	Only demonstrates a limited ability to explain natural phenomena.	Occasionally demonstrates an ability to explain natural phenomena.	Independently develops an explanation of natural phenomena in a continuing creative process.	Consistently asks “why” questions to develop an explanation of natural phenomena in a continuing creative process.
Problem Solving	Applies components of the scientific method/process skills when prompted by the teacher.	Occasionally applies limited components of the scientific method/process skills when designing solutions to problems.	Independently applies scientific method/process skills when designing solutions to problems.	Consistently applies scientific method/process skills when designing creative solutions to problems.
Collaboration	Works towards group goals and contributes information only when prompted.	Works towards group goals and contributes information with occasional prompting.	Works toward group goals. Accepts individual role and contributes knowledge, opinion, and skills	Consistently works toward group goals. Actively contributes knowledge, opinions, and skills.
Content Knowledge	Demonstrates limited content knowledge.	Occasionally demonstrates content knowledge.	Independently demonstrates content knowledge.	Consistently demonstrates mastery of content knowledge.