



Science Core Curriculum

Pre-Kindergarten – Quarter 4

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

NYS Standard	Key Ideas & Performance Indicators	Resources Chapters, Web Links, Leveled Books, Technology Tools, Nonfiction/Technical Writing	Assessments
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PHYSICAL SCIENCE			
	Key Idea 3: Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.	www.kids-science-experiments.com	Student Response
	<i>Performance Indicator 3.1</i> <i>Observe and describe properties of materials, using appropriate tools.</i>	Pages 114-115	Lesson/Activity 22
	Major Understandings:		
3.1e	The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduate cylinders.	Pages 126-127 www.gryphonhouse.com	Lesson/Activity 26 Activity: Sink/Float
	<i>Performance Indicator 3.2</i> <i>Describe chemical and physical changes, including changes in states of matter.</i>	www.kids-science-experiments.com http://www.stevespanglerscience.com/experiment/original-mentos-diet-coke-geyser	Student Response
	Major Understandings:		
3.2a	Matter exists in three states: solid, liquid, gas. <ul style="list-style-type: none"> • Solids have a definite shape and volume. • Liquids do not have a definite shape but have a definite volume. 	www.gryphonhouse.com	Activities: Goop Recipe Bubbles Playdough



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	<ul style="list-style-type: none"> • Gases do not hold their shape or volume. 		
3.2b	Temperature can affect the state of matter of a substance.	Make ice cream	
3.2c	Changes in the properties or materials of objects can be observed and described.	Make ice cream	
	Key Idea 4: Energy exists in many forms, and when these forms change energy is conserved.	Flashlights and Batteries On/Off Light Switches	
	<i>Performance Indicator 4.1</i> <i>Describe a variety of forms of energy (e.g., heat, chemical, light) and the changes that occur in objects when they interact with those forms of energy.</i>	Flashlights and Batteries On/Off Light Switches	
	Major Understandings:		
4.1a	Energy exists in various forms: heat, electric, sound, chemical, mechanical, and light.	Pearsonsuccessnet.net	Guided Lab How Can You Make Something Warmer or Cooler?
4.1b	Energy can be transferred from one place to another.	www.kids-science-experiments.com Bending Water	
4.1c	Some materials transfer energy better than others (heat and electricity).	www.kids-science-experiments.com Heat	
4.1d	Energy and matter interact: water is evaporated by the Sun’s heat; a bulb is lighted by means of electrical current; a musical instrument is played to produce sound; dark colors may absorb light; light colors may reflect light.	Pearsonsuccessnet.net	Guided Inquiry Lab What Can Sunlight Do? How Can Sounds Change?



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			How Can You Hear a Soft Sound Better?
4.1e	Electricity travels in a closed circuit.	http://www.explainthatstuff.com/electricity.html	
4.1f	Heat can be released in many ways, for example, by burning, rubbing (friction), or combining one substance with another.	http://www.neok12.com/Types-of-Forces.htm (Friction)	
4.1g	Interactions with forms of energy can be either helpful or harmful.	www.bbc.co.uk Light and dark	
	<i>Performance Indicator 4.2</i> <i>Observe the way one form of energy can be transferred into another form of energy present in common situations (e.g., mechanical to heat energy, mechanical to electrical energy, chemical to heat energy).</i>	www.energy.gov Get Current: Switch on Clean Energy	
	Major Understandings:		
4.2a	Every day events involve one form of energy being changed to another. <ul style="list-style-type: none"> • Animals convert food to heat and motion. • The Sun’s energy warms the air and water. 	www.sesamestreet.org (Food equals energy)	
4.2b	Humans utilize interactions between matter and energy. <ul style="list-style-type: none"> • Chemical to electrical, light, and heat; battery and bulb. • Electrical to sound (e.g., doorbell buzzer). • Mechanical to sound (e.g., musical instruments, clapping). • Light to electrical (e.g., solar-powered calculator). 	Pages 140-141 www.bbc.co.uk Sound and Hearing	Activity: Tools



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	Key Idea 5: Energy and matter interact through forces that result in changes of motion.	http://www.sciencebob.com/experiments/filmrocket.php	
	<i>Performance Indicator 5.1</i> <i>Describe the effects of common forces (pushes and pulls) of objects, such as those caused by gravity, magnetism, and mechanical forces.</i>	<i>Pages 128-129</i> Sesamestreet.org –Bert’s Magnet Trick	<i>Lesson/Activity 27</i>
	Major Understandings:		
5.1a	The position of an object can be described by locating it relative to another object or the background (e.g., on top of, next to, over, under, etc.).		
5.1b	The position or direction of motion of an object can be changed by pushing or pulling.	Pages 134-135 www.bbc.co.uk Pushes and Pulls	Lesson/Activity 28
5.1c	The force of gravity pulls objects toward the center of Earth.	Pages 132-133	Activity: Movement
5.1d	The amount of change in the motion of an object is affected by friction.		
5.1e	Magnetism is a force that may attract or repel certain materials.	http://www.sciencefairsanity.com/home/sci/page_30_8/magnetic_attraction.html	
5.1f	Mechanical energy may cause change in motion through the	www.gryphonhouse.com	



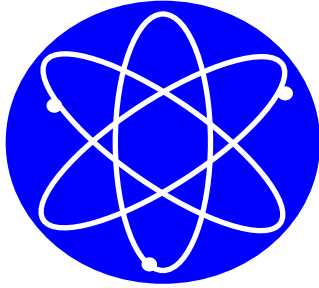
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	application of force and through the use of simple machines such as pulleys, levers, and inclined planes.	Blast-Off Paper Rockets	
	<i>Performance Indicator 5.2</i> <i>Describe how forces can operate across distances.</i>		
	Major Understandings:		
5.2a	The forces of gravity and magnetism can affect objects through gases, liquids, and solids.		
5.2b	The force of magnetism on objects decreases as distance increases.		



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.