

Correlation to the New York State Learning Standards and Major Understandings

This worktext is customized to the New York *Elementary Science Core Curriculum* and will help you prepare for the *New York State Elementary-Level Science Test* for Grade 4.

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
STANDARDS 1, 2, 6, AND 7: EXPANDED PROCESS SKILLS		
Standard 1—Analysis, Inquiry, and Design		
Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.		
Mathematical Analysis		
M1.1	Use special mathematical notation and symbolism to communicate in mathematics and to compare and describe quantities, express relationships, and relate mathematics to their immediate environment.	
M1.1a	Use plus, minus, greater than, less than, equal to, multiplication, and division signs.	4
M1.1b	Select appropriate operation to solve mathematical problems.	4
M1.1c	Apply mathematical skills to describe the natural world.	4
M2.1	Use simple logical reasoning to develop conclusions, recognizing that patterns and relationships present in the environment assist them in reaching these conclusions.	
M2.1a	Explain verbally, graphically, or in writing the reasoning used to develop mathematical conclusions.	4, Ch 6 PT
M2.1b	Explain verbally, graphically, or in writing patterns and relationships observed in the physical and living environment.	4, Ch 6 PT
M3.1	Explore and solve problems generated from school, home, and community situations, using concrete objects or manipulative materials when possible.	
M3.1a	Use appropriate scientific tools, such as metric rulers, spring scale, pan balance, graph paper, thermometers [Fahrenheit and Celsius], graduated cylinder to solve problems about the natural world.	5, Ch 3, 6 PT
Scientific Inquiry		
S1.1	Ask “why” questions in attempts to seek greater understanding concerning objects and events they have observed and heard about.	
S1.1a	Observe and discuss objects and events and record observations.	1
S1.1b	Articulate appropriate questions based on observations.	1
S1.2	Question the explanations they hear from others and read about, seeking clarification and comparing them with their own observations and understandings.	
S1.2a	Identify similarities and differences between explanations received from others or in print or personal observations and understandings.	1
S1.3	Develop relationships among observations to construct descriptions of objects and events and to form their own tentative explanations of what they have observed.	
S1.3a	Clearly express a tentative explanation or description which can be tested.	1
S2.1	Develop written plans for exploring phenomena or for evaluating explanations guided by questions or proposed explanations they have helped formulate.	
S2.1a	Indicate materials to be used and steps to follow to conduct the investigation and describe how data will be recorded (journal, dates, and times, etc.).	2, 5, Ch 1, 2 PT
S2.2	Share their research plans with others and revise them based on their suggestions.	
S2.2a	Explain the steps of a plan to others, actively listening to their suggestions for possible modification of the plan, seeking clarification and understanding of the suggestions and modifying the plan where appropriate.	3, 5, Ch 1, 2 PT

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
S2.3	Carry out their plans for exploring phenomena through direct observation and through the use of simple instruments that permit measurement of quantities, such as length, mass, volume, temperature, and time.	
S2.3a	Use appropriate “inquiry and process skills” to collect data.	2, 5, Ch 1,6 PT
S2.3b	Record observations accurately and concisely.	3, 5, Ch 1,6 PT
S3.1	Organize observations and measurements of objects and events through classification and the preparation of simple charts and tables.	
S3.1a	Accurately transfer data from a science journal or notes to appropriate graphic organizer.	3, Ch 1 PT
S3.2	Interpret organized observations and measurements, recognizing simple patterns, sequences, and relationships.	
S3.2a	State, orally and in writing, any inferences or generalizations indicated by the data collected.	3, Ch 1, 5, 6 PT
S3.3	Share their findings with others and actively seek their interpretations and ideas.	
S3.3a	Explain their findings to others, and actively listen to suggestions for possible interpretations and ideas.	3, Ch 1, 5 PT
S3.4	Adjust their explanations and understandings of objects and events based on their findings and new ideas.	
S3.4a	State, orally and in writing, any inferences or generalizations indicated by the data, with appropriate modifications of their original prediction/explanation.	3, Ch 1, 5, 6 PT
S3.4b	State, orally and in writing, any new questions that arise from their investigation.	3, Ch 6 PT
Engineering Design		
T1.1	Describe objects, imaginary or real, that might be modeled or made differently and suggest ways in which the objects can be changed, fixed, or improved.	
T1.1a	Identify a simple/common object which might be improved and state the purpose of the improvement.	Ch 4 PT
T1.1b	Identify features of an object that help or hinder the performance of the object.	Ch 6 PT
T1.1c	Suggest ways the object can be made differently, fixed, or improved within given constraints.	Ch 6 PT
T1.2	Investigate prior solutions and ideas from books, magazines, family, friends, neighbors, and community members.	
T1.2a	Identify appropriate questions to ask about the design of an object.	Ch 2, 3, 4 PT
T1.2b	Identify the appropriate resources to use to find out about the design of an object.	Ch 3 PT
T1.2c	Describe prior designs of the object.	Ch 6 PT
T1.3	Generate ideas for possible solutions, individually and through group activity; apply age-appropriate mathematics and science skills; evaluate the ideas and determine the best solution; and explain reasons for the choices.	
T1.3a	List possible solutions, applying age-appropriate math and science skills.	Ch 3 PT
T1.3b	Develop and apply criteria to evaluate possible solutions.	Ch 3 PT
T1.3c	Select a solution consistent with given constraints and explain why it was chosen.	Ch 3 PT
T1.4	Plan and build, under supervision, a model of the solution, using familiar materials, processes, and hand tools.	
T1.4a	Create a grade-appropriate graphic or plan listing all the materials needed, showing sizes of parts, indicating how things will fit together, and detailing steps for assembly.	Ch 2, 3, 4, 7 PT
T1.4b	Build a model of the object, modifying the plan as necessary.	Ch 3, 4, 5, 7 PT
T1.5	Discuss how best to test the solution; perform the test under teacher supervision; record and portray results through numerical and graphic means; discuss orally why things worked or didn't work; and summarize results in writing, suggesting ways to make the solution better.	
T1.5a	Determine a way to test the finished solution or model.	Ch 4, 7 PT
T1.5b	Perform the test and record the results, numerically and/or graphically.	Ch 3, 4, 5 PT

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
T1.5c	Analyze results and suggest how to improve the solution or model, using oral, graphic, or written formats.	Ch 3, 4, 7 PT
Standard 2—Information Systems Students will access, generate, process, and transfer information using appropriate technologies.		
IS2.1	Information technology is used to retrieve, process, and communicate information and as a tool to enhance learning. <ul style="list-style-type: none"> use computer technology, traditional paper-based resources, and interpersonal discussions to learn, do, and share science in the classroom select appropriate hardware and software that aids in word processing, creating databases, telecommunications, graphing, data display, and other tasks use information technology to link the classroom to world events 	3
IS2.2	Knowledge of the impacts and limitations of information systems is essential to its effectiveness and ethical use. <ul style="list-style-type: none"> use a variety of media to access scientific information consult several sources of information and points of view before drawing conclusions identify and report sources in oral and written communications 	3
IS2.3	Information technology can have positive and negative impacts on society, depending upon how it is used. <ul style="list-style-type: none"> distinguish fact from fiction (presenting opinion as fact is contrary to the scientific process) demonstrate an ability to critically evaluate information and misinformation recognize the impact of information technology on the daily life of students 	1
Standard 6—Interconnectedness: Common Themes Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.		
Systems Thinking		
ICT6.1	Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions. <ul style="list-style-type: none"> observe and describe interactions among components of simple systems identify common things that can be considered to be systems (e.g., a plant, a transportation system, human beings) 	Ch 1, 6 PT
Models		
ICT6.2	Models are simplified representations of objects, structures, or systems, used in analysis, explanation, or design. <ul style="list-style-type: none"> analyze, construct, and operate models in order to discover attributes of the real thing discover that a model of something is different from the real thing but can be used to study the real thing use different types of models, such as graphs, sketches, diagrams, and maps, to represent various aspects of the real world 	Ch 4, 6, 7 PT
Magnitude and Scale		
ICT6.3	The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in the scale that affect behavior and design of systems. <ul style="list-style-type: none"> observe that things in nature and things that people make have very different sizes, weights, and ages recognize that almost anything has limits on how big or small it can be 	Ch 2 PT
Equilibrium and Stability		
ICT6.4	Equilibrium is a state of stability due to either a lack of changes (static equilibrium) or a balance between opposing forces (dynamic equilibrium). <ul style="list-style-type: none"> observe that things change in some ways and stay the same in some ways recognize that things can change in different ways such as size, weight, color, and movement. Some small changes can be detected by taking measurements 	Ch 6, 7 PT
Patterns of Change		

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
ICT6.5	Identifying patterns of change is necessary for making predictions about future behavior and conditions. <ul style="list-style-type: none"> • use simple instruments to measure such quantities as distance, size, and weight and look for patterns in the data • analyze data by making tables and graphs and looking for patterns of change 	Ch 1 PT
Optimization		
ICT6.6	In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs. <ul style="list-style-type: none"> • choose the best alternative of a set of solutions under given constraints • explain the criteria used in selecting a solution orally and in writing 	Ch 5 PT
Standard 7—Interdisciplinary Problem Solving Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.		
Connections		
IPS7.1	The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/ technology/ society, consumer decision making, design, and inquiry into phenomena. <ul style="list-style-type: none"> • analyze science/ technology/ society problems and issues that affect their home, school, or community, and carry out a remedial course of action. • make informed consumer decisions by applying knowledge about the attributes of particular products and making cost/benefit trade-offs to arrive at an optimal choice. • design solutions to problems involving a familiar and real context, investigate related science concepts to determine the solution, and use mathematics to model, quantify, measure, and compute. • observe phenomena and evaluate them scientifically and mathematically by conducting a fair test of the effect of variables and using mathematical knowledge and technological tools to collect, analyze, and present data and conclusions. 	CH 1, 3, 4, 7 PT
Strategies		
IPS7.2	Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results. <ul style="list-style-type: none"> • work effectively • gather and process information • generate and analyze ideas • observe common themes • realize ideas • present results 	CH 1–7 PT
SCIENCE SKILLS		
Standard 4—The Physical Setting 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.		
PS1.1a	Natural cycles and patterns include: <ul style="list-style-type: none"> • Earth spinning around once every 24 hours (rotation), resulting in day and night • Earth moving in a path around the Sun (revolution), resulting in one Earth year • the length of daylight and darkness varying with the seasons • weather changing from day to day and through the seasons • the appearance of the Moon changing as it moves in a path around Earth to complete a single cycle 	31
PS1.1b	Humans organize time into units based on natural motions of Earth: <ul style="list-style-type: none"> • second, minute, hour • week, month 	31
PS1.1c	The Sun and other stars appear to move in a recognizable pattern both daily and seasonally.	31
PS2.1a	Weather is the condition of the outside air at a particular moment.	27

New York State Learning Standards and Major Understandings	Measuring Up® Lessons
PS2.1b Weather can be described and measured by: <ul style="list-style-type: none"> • temperature • wind speed and direction • form and amount of precipitation • general sky conditions (cloudy, sunny, partly cloudy) 	Ch 1 PT, 27
PS2.1c Water is recycled by natural processes on Earth. <ul style="list-style-type: none"> • evaporation: changing of water (liquid) into water vapor (gas) • condensation: changing of water vapor (gas) into water (liquid) • precipitation: rain, sleet, snow, hail • runoff: water flowing on Earth’s surface • groundwater: water that moves downward into the ground 	27, 28
PS2.1d Erosion and deposition result from the interaction among air, water, and land. <ul style="list-style-type: none"> • interaction between air and water breaks down earth materials • pieces of earth material may be moved by air, water, wind, and gravity • pieces of earth material will settle or deposit on land or in the water in different places • soil is composed of broken-down pieces of living and nonliving earth material 	29
PS2.1e Extreme natural events (floods, fires, earthquakes, volcanic eruptions, hurricanes, tornadoes, and other severe storms) may have positive or negative impacts on living things.	30
PS3.1a Matter takes up space and has mass. Two objects cannot occupy the same place at the same time.	6
PS3.1b Matter has properties (color, hardness, odor, sound, taste, etc.) that can be observed through the senses.	6
PS3.1c Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.	6, 7
PS3.1d Measurements can be made with standard metric units and nonstandard units. <i>(Note: Exceptions to the metric system usage are found in meteorology.)</i>	6, 7
PS3.1e 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 graduated cylinders.	6, 7
PS3.1f Objects and/ or materials can be sorted or classified according to their properties.	7
PS3.1g Some properties of an object are dependent on the conditions of the present surroundings in which the object exists. For example: <ul style="list-style-type: none"> • temperature- hot or cold • lighting- shadows, color • moisture- wet or dry 	7
PS3.2a 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 • gases do not hold their shape or volume 	8
PS3.2b Temperature can affect the state of matter of a substance.	8
PS3.2c Changes in the properties or materials of objects can be observed and described.	8
PS4.1a Energy exists in various forms: heat, electric, sound, chemical, mechanical, light.	9, 13
PS4.1b Energy can be transferred from one place to another.	10, 11, 13
PS4.1c Some materials transfer energy better than others (heat and electricity).	10, 11, 12, 13
PS4.1d Energy and matter interact: water is evaporated by the Sun’s heat; a bulb is lighted means of electrical current; a musical instrument is played to produce sound; dark colors may absorb light, light colors may reflect light.	11, 12, 13
PS4.1e Electricity travels in a closed circuit.	9, 10

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
PS4.1f	Heat can be released in many ways, for example, by burning, rubbing (friction), or combining one substance with another.	9, 11
PS4.1g	Interactions with forms of energy can be either helpful or harmful.	9, 13
PS4.2a	Everyday 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 	10, 12
PS4.2b	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) 	10, 12
PS5.1a	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.).	14, Ch 7 PT
PS5.1b	The position or direction of motion of an object can be changed by pushing or pulling.	14
PS5.1c	The force of gravity pulls objects toward the center of the Earth.	16
PS5.1d	The amount of change in the motion of an object is affected by friction.	14
PS5.1e	Magnetism is a force that may attract or repel certain materials.	16, Ch 7 PT
PS5.1f	Mechanical energy may cause change in motion through the application of force and through the use of simple machines such as pulleys, levers, and inclined planes.	15
PS5.2a	The forces of gravity and magnetism can affect objects through gases, liquids, and solids.	16, Ch 7 PT
PS5.2b	The force of magnetism on objects decreases as distance increases.	16, Ch 7 PT
Standard 4—The Living Environment 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.		
LE1.1a	Animals need air, water, and food in order to live and thrive.	17, 22
LE1.1b	Plants require air, water, nutrients, and light in order to live and thrive.	17, 21, Ch 5 PT
LE1.1c	Nonliving things do not live and thrive.	17
LE1.1d	Nonliving things can be human-created or naturally occurring.	17
LE1.2a	Living things grow, take in nutrients, breathe, reproduce, eliminate waste, and die.	21
LE2.1a	Some traits of living things have been inherited (e.g., color of flowers and number of limbs of animals).	17, 18
LE2.1b	Some characteristics result from an individual’s interactions with the environment and cannot be inherited by the next generation (e.g., having scars; riding a bicycle).	18
LE2.2a	Plants and animals closely resemble their parents and other individuals in their species.	18
LE2.2b	Plants and animals can transfer specific traits to their offspring when they reproduce.	18
LE3.1a	Each animal has different structures that serve different functions in growth, survival, and reproduction. <ul style="list-style-type: none"> • wings, legs, or fins enable some animals to seek shelter and escape predators • the mouth, including teeth, jaws, and tongue, enables some animals to eat and drink • eyes, nose, ears, tongue, and skin of some animals enable the animals to sense their surroundings • claws, shells, spines, feathers, fur, scales, and color of body covering enable some animals to protect themselves from predators and other environmental conditions, or enable them to obtain food • some animals have parts that are used to produce sounds and smells to help the animal meet its needs • the characteristics of some animals change as seasonal conditions change (e.g., fur grows and is shed to help regulate body heat; body fat is a form of stored energy and it changes as the seasons change) 	22

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings	Measuring Up [®] Lessons
LE3.1b Each plant has different structures that serve different functions in growth, survival, and reproduction. <ul style="list-style-type: none"> • roots help support the plant and take in water and nutrients • leaves help plants utilize sunlight to make food for the plant • stems, stalks, trunks, and other similar structures provide support for the plant • some plants have flowers • flowers are reproductive structures of plants that produce fruit which contains seeds • seeds contain stored food that aids in germination and the growth of young plants 	21, CH 5 PT
LE3.1c In order to survive in their environment, plants and animals must be adapted to that environment. <ul style="list-style-type: none"> • seeds disperse by a plant’s own mechanism and/ or in a variety of ways that can include wind, water, and animals • leaf, flower, stem, and root adaptations may include variations in size, shape, thickness, color, smell, and texture • animal adaptations include coloration for warning or attraction, camouflage, defense mechanisms, movement, hibernation, and migration 	21, 22
LE3.2a Individuals within a species may compete with each other for food, mates, space, water, and shelter in their environment.	23
LE3.2b All individuals have variations, and because of these variations, individuals of a species may have an advantage in surviving and reproducing.	23
LE4.1a Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death.	19
LE4.1b Each kind of plant goes through its own stages of growth and development that may include seed, young plant, and mature plant.	19
LE4.1c The length of time from beginning of development to death of the plant is called its life span.	19
LE4.1d Life cycles of some plants include changes from seed to mature plant.	19
LE4.1e Each generation of animals goes through changes in form from young to adult. This completed sequence of changes in form is called a life cycle. Some insects change from egg to larva to pupa to adult.	20
LE4.1f Each kind of animal goes through its own stages of growth and development during its life span.	20
LE4.1g The length of time from an animal’s birth to its death is called its life span. Life spans of different animals vary.	20
LE4.2a Growth is the process by which plants and animals increase in size.	19, 20, 21, 22
LE4.2b Food supplies the energy and materials necessary for growth and repair.	19, 20, 21, 22
LE5.1a All living things grow, take in nutrients, breathe, reproduce, and eliminate waste.	19, 20, 24
LE5.1b An organism’s external physical features can enable it to carry out life functions in its particular environment.	19, 20, 24
LE5.2a Plants respond to changes in their environment. For example, the leaves of some green plants change position as the direction of light changes; the parts of some plants undergo seasonal changes that enable the plant to grow; seeds germinate, and leaves form and grow.	21, 23
LE5.2b Animals respond to change in their environment (e.g., perspiration, heart rate, breathing rate, eye blinking, shivering, and salivating).	22, 23
LE5.2c Senses can provide essential information (regarding danger, food, mates, etc.) to animals about their environment.	22, 23
LE5.2d Some animals, including humans, move from place to place to meet their needs.	22, 26
LE5.2e Particular animal characteristics are influenced by changing environmental conditions including: fat storage in winter, coat thickness in winter, camouflage, shedding of fur.	22, 23
LE5.2f Some animal behaviors are influenced by environmental conditions. These behaviors may include: nest building, hibernating, hunting, migrating, and communicating.	22, 23
LE5.2g The health, growth, and development of organisms are affected by environmental conditions such as the availability of food, air, water space, shelter, heat, and sunlight.	21, 22

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
LE5.3a	Humans need a variety of healthy foods, exercise, and rest in order to grow and maintain good health.	26
LE5.3b	Good health habits include hand washing and personal cleanliness; avoiding harmful substances (including alcohol, tobacco, illicit drugs); eating a balanced diet; engaging in regular exercise.	26
LE6.1a	Green plants are producers because they provide the basic food supply for themselves and animals.	24
LE6.1b	All animals depend on plants. Some animals (predators) eat other animals (prey).	24, 25
LE6.1c	Animals that eat plants for food may in turn become food for other animals. This sequence is called a food chain.	25
LE6.1d	Decomposers are living things that play a vital role in recycling nutrients.	21, 24
LE6.1e	An organism's pattern of behavior is related to the nature of that organism's environment, including the kinds and numbers of other organisms present, the availability of food and other resources, and the physical characteristics of the environment.	23
LE6.1f	When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.	21
LE6.2a	Plants manufacture food by utilizing air, water, and energy from the Sun.	24
LE6.2b	the Sun's energy is transferred on Earth from plants to animals through the food chain.	25
LE6.2c	Heat energy from the Sun powers the water cycle.	28
LE7.1a	Humans depend on their natural and constructed environments.	26
LE7.1b	Over time humans have changed their environment by cultivating crops and raising animals, creating shelter, using energy, manufacturing goods, developing means of transportation, changing populations, and carrying out other activities.	26
LE7.1c	Humans, as individuals or communities, change environments in ways that can be either helpful or harmful for themselves and other organisms.	26

Ch = Chapter PT = Performance Task

Correlation to the New York City Grade 3 Science Scope and Sequence

This worktext is customized to the New York City *Science Scope and Sequence* and will help you prepare for the *New York City Science Assessment* for Grade 3.

NYC Scope and Sequence	NYS Learning Standard(s)	Measuring Up® Lessons
UNIT 1: Matter		
What are some of the properties of matter?		
Measure, compare and record physical properties of objects using: <ul style="list-style-type: none"> • Standard (metric) and nonstandard units • Appropriate tools (e.g., rulers, thermometers, pan balances, spring scales, graduated cylinders, beakers) 	PS 3.1b, PS 3.1c, PS 3.1d, PS 3.1e	6, 7
Describe and compare the physical properties of matter (size, shape, mass/weight, volume, flexibility, luster, color, texture, hardness, odor, etc.)	PS 3.1b, PS 3.1c	6, 7
UNIT 2: Energy		
What are some ways that energy can be changed from one form to another?		
Observe, identify, and describe a variety of forms of energy: <ul style="list-style-type: none"> • Sound • Heat • Chemical • Mechanical • Electricity 	PS 4.1a	9, 13
Identify the evidence for energy transformations and how humans use these energy transformations: <ul style="list-style-type: none"> • Heat to light, chemical to electrical, electrical to sound, etc. 	PS 4.2a, PS 4.2b	10, 12
Observe and describe how heat is conducted and can be transferred from one place to another.	PS 4.1b, PS 4.1c, PS 4.1d	10, 11, 12, 13, Ch 3 PT
Observe and describe different ways in which heat can be released: <ul style="list-style-type: none"> • Burning, rubbing (friction), or combining one substance with another. 	PS 4.1f	9
Interactions of matter and energy (e.g., electricity lighting a bulb, dark colors absorbing light, etc).	PS 4.1d	11, 12, 13
Sound energy: <ul style="list-style-type: none"> • Pitch (frequency) • Vibrations • Volume • How sound travels through solids, liquids, gases • Noise pollution 	PS 4.1a, PS 4.1b, PS 4.1c, PS 4.1d, PS 4.1g	9, 10, 11, 12, 13, Ch 3 PT
UNIT 3: Simple Machines		
How do simple machines help us move objects?		
Demonstrate how mechanical energy may cause change in motion through the application of force or the use of simple machines, such as: <ul style="list-style-type: none"> • Levers, pulleys, inclined planes • Wheel and axle 	PS 5.1f	15
Observe and describe how the amount of change in the motion of an object is affected by friction.	PS 5.1d	14
Observe and describe how the position or direction of motion of an object can be changed by pushing or pulling.	PS 5.1b	14
Observe how the force of gravity pulls objects toward the center of the Earth.	PS 5.1c	16

NYC Scope and Sequence	NYS Learning Standard(s)	Measuring Up® Lessons
UNIT 4: Plant and Animal Adaptations		
How are plants and animals well-suited to live in their environments?		
Describe how all living things grow, take in nutrients, breathe, reproduce and eliminate wastes.	LE 5.1a, LE 5.1b	19, 20, 24
Describe how plants must be adapted to their environment in order to survive: <ul style="list-style-type: none"> • Structures and their functions (e.g., roots, leaves, flowers, etc.) • Adaptations of these structures may include variations in size, shape, thickness, color, smell, and texture • Plants change as the seasons change • See dispersal 	LE 3.1b, LE 3.1c, LE 5.2a, LE 6.1f	21, 22, 23, 26, Ch 5 PT
Describe how animals must be adapted to their environment in order to survive: <ul style="list-style-type: none"> • Structures and functions (e.g., wings, legs, fins, scales, feathers, fur, etc.) • Understand that animals respond to change in the environment (e.g., heart rate, eye blinking, shivering) • Animals change as seasons change <ul style="list-style-type: none"> ◦ Hibernation ◦ Migration (i.e., moving from place to place to meet needs) including human 	LE 3.1a, LE 3.1c, LE 5.2b, LE 5.2d, LE 5.2e, LE 5.2f, LE 6.1f	21, 22, 23, 26
Recognize that traits of living things are both: <ul style="list-style-type: none"> • Inherited (color of flowers, eye color) • Learned/acquired (riding a bicycle, having scars) 	LE 2.1a, LE 2.1b	17, 18