Correlation to the New York State Learning Standards and Major Understandings

This worktext is customized to the *New York Intermediate Science Core Curriculum* and will help you prepare for the *New York State Intermediate-Level Science Test* in Science for Grade 8.

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	Extend mathematical notation and symbolism to include variables and algebraic expressions in order to describe and compare quantities and express mathematical relationships.	
M1.1a	Identify independent and dependent variables.	5
M1.1b	Identify relationships among variables including: direct, indirect, cyclic, constant; identify non-related material.	5
M1.1c	Apply mathematical equations to describe relationships among variables in the natural world.	5
M2.1	Use inductive reasoning to construct, evaluate, and validate conjectures and arguments, recognizing that patterns and relationships can assist in explaining and extending mathematical phenomena.	
M2.1a	Interpolate and extrapolate data.	4
M2.1b	Quantify patterns and trends.	4
M3.1	Apply mathematical knowledge to solve real-world problems and problems that arise from the investigation of mathematical ideas, using representations such as pictures, charts, and tables.	
M3.1a	Use appropriate scientific tools to solve problems about the natural world.	4
Scientific Inquiry		
S1.1	Formulate questions independently with the aid of references appropriate for guiding the search for explanations of everyday observations.	
S1.1a	Formulate questions about natural phenomena.	1
S1.1b	Identify appropriate references to investigate a question.	1
S1.1c	Refine and clarify questions so that they are subject to scientific investigation.	1
S1.2	Construct explanations independently for natural phenomena, especially by proposing preliminary visual models for phenomena.	
S1.2a	Independently formulate a hypothesis.	1
S1.2b	Propose a model of a natural phenomena.	1
S1.2c	Differentiate among observations, inferences, predictions, and explanations.	1, 4
S1.3	Represent, present, and defend their proposed explanations of everyday observations so that they can be understood and assessed by others.	1
S1.4	Seek to clarify, to assess critically, and to reconcile with their own thinking the ideas presented by others, including peers, teachers, authors, and scientists.	1
S2.1	Use conventional techniques and those of their own design to make further observations and refine their explanations, guided by a need for more information.	
S2.1a	Demonstrate appropriate safety techniques.	3
S2.1b	Conduct an experiment designed by others.	Ch 1-10 PT
S2.1c	Design and conduct an experiment to test a hypothesis.	1
S2.1d	Use appropriate tools and conventional techniques to solve problems about the natural world, including • measuring • observing • describing • classifying • sequencing	2

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
S2.2	Develop, present, and defend formal research proposals for testing their own explanations of common phenomena, including ways of obtaining needed observations and ways of conducting simple controlled experiments.	
S2.2a	Include appropriate safety procedures.	3
S2.2b	Design scientific investigations (e.g., observing, describing, and comparing; collecting samples; seeking more information, conducting a controlled experiment; discovering new objects or phenomena; making models).	2, 4
S2.2c	Design a simple controlled experiment.	2, Ch 1 PT
S2.2d	Identify independent variables (manipulated), dependent variables (responding), and constants in a simple controlled experiment.	2
S2.2e	Choose appropriate sample size and number of trials.	2
S2.3	Carry out their research proposals, recording observations and measurements (e.g., lab notes, audiotape, computer disk, videotape) to help assess the explanation.	
S2.3a	Use appropriate safety procedures.	3
S2.3b	Conduct a scientific investigation.	1, 2, Ch 1 PT
S2.3c	Collect quantitative and qualitative data.	4
S3.1	Design charts, tables, graphs, and other representations of observations in conventional and creative ways to help them address their research question or hypothesis.	
S3.1a	Organize results, using appropriate graphs, diagrams, data tables, and other models to show relationships.	4, Ch 1 PT
S3.1b	Generate and use scales, create legends, and appropriately label axes.	4
S3.2	Interpret the organized data to answer the research question or hypothesis and to gain insight into the problem.	
S3.2a	Accurately describe the procedures used and the data gathered.	4, Ch 1 PT
S3.2b	Identify sources of error and the limitations of data collected.	2
S3.2c	Evaluate the original hypothesis in light of the data.	2
S3.2d	Formulate and defend explanations and conclusions as they relate to scientific phenomena.	4
S3.2e	Form and defend a logical argument about cause-and-effect relationships in an investigation.	1
S3.2f	Make predictions based on experimental data.	4
S3.2g	Suggest improvements and recommendations for further studying.	1
S3.2h	Use and interpret graphs and data tables.	4, Ch 1 PT
S3.3	Modify their personal understanding of phenomena based on evaluation of their hypothesis.	1
Engineering Design		
T1.1	Identify needs and opportunities for technical solutions from an investigation of situations of general or social interest.	
T1.1a	Identify a scientific or human need that is subject to a technological solution which applies scientific principles.	Ch 6 PT
T1.2	Locate and utilize a range of printed, electronic, and human information resources to obtain ideas.	
T1.2a	Use all available information systems for a preliminary search that addresses the need.	Ch 5 PT
T1.3	Consider constraints and generate several ideas for alternative solutions, using group and individual ideation techniques (group discussion, brainstorming, forced connections, role play); defer judgment until a number of ideas have been generated; evaluate (critique) ideas; and explain why the chosen solution is optimal.	
T1.3a	Generate ideas for alternative solutions.	Ch 2 PT, Ch 3 PT1, Ch 4 PT
T1.3b	Evaluate alternatives based on the constraints of design.	Ch 2 PT, Ch 3 PT1, Ch 4 PT

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
T1.4	Develop plans, including drawings with measurements and details of construction, and construct a model of the solution, exhibiting a degree of craftsmanship.	
T1.4a	Design and construct a model of the product or process.	5, Ch 5-6 PT
T1.4b	Construct a model of the product or process.	5, Ch 5-6 PT
T1.5	In a group setting, test their solution against design specifications, present and evaluate results, describe how the solution might have been modified for different or better results, and discuss trade-offs that might have to be made.	
T1.5a	Test a design.	Ch 3 PT1
T1.5b	Evaluate a design.	Ch 2 PT, Ch 3 PT1, Ch 4 PT
Standard 2—Information Systems Students will access, generate, process, and transfer information, using appropriate technologies.		
IS 1.1	Use a range of equipment and software to integrate several forms of information in order to create good-quality audio, video, graphic, and text-based presentations.	Ch 9 PT
IS 1.2	Use spreadsheets and database software to collect, process, display, and analyze information. Students access needed information from electronic databases and on-line telecommunication services.	4
IS 1.3	Systematically obtain accurate and relevant information pertaining to a particular topic from a range of sources, including local and national media, libraries, museums, governmental agencies, industries, and individuals.	20, 46
IS 1.4	Collect data from probes to measure events and phenomena.	
IS 1.4a	Collect the data, using the appropriate, available tool.	4, Ch 1 PT
IS 1.4b	Organize the data.	4, Ch 1 PT
IS 1.4c	Use the collected data to communicate a scientific concept.	4, Ch 1 PT
IS 1.5	Use simple modeling programs to make predictions.	5
IS 2.1	Understand the need to question the accuracy of information displayed on a computer because the results produced by a computer may be affected by incorrect data entry.	
IS 2.1a	Critically analyze data to exclude erroneous information.	2
IS 2.1b	Identify and explain sources of error in a data collection.	2
IS 2.2	Identify advantages and limitations of data-handling programs and graphics programs.	Ch 1 PT
IS 2.3	Understand why electronically stored personal information has greater potential for misuse than records kept in conventional form.	2
IS 3.1	Use graphical, statistical, and presentation software to present projects to fellow classmates.	4
IS 3.2	Describe applications of information technology in mathematics, science, and other technologies that address needs and solve problems in the community.	2
IS 3.3	Explain the impact of the use and abuse of electronically generated information on individuals and families.	47
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		
ICT 1.1	Describe the differences between dynamic systems and organizational systems.	Ch 10 PT
ICT 1.2	Describe the differences and similarities among engineering systems, natural systems, and social systems.	Ch 3 PT2, 30, 41, 42
ICT 1.3	Describe the differences between open- and closed-loop systems.	Ch 8 PT
ICT 1.4	Describe how the output from one part of a system (which can include material, energy, or information) can become the input to other parts.	32, 41, Ch 8 PT
Models		
ICT 2.1	Select an appropriate model to begin the search for answers or solutions to a question or problem.	5, 32

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings	Measuring Up® Lessons
ICT 2.2 Use models to study processes that cannot be studied directly (e.g., when the real process is too slow, too fast, or too dangerous for direct observation).	5, 32, Ch 7, 10 PT
ICT 2.3 Demonstrate the effectiveness of different models to represent the same thing and the same model to represent different things.	5, Ch 2 PT, 32
Magnitude and Scale	
ICT 3.1 Cite examples of how different aspects of natural and designed systems change at different rates with changes in scale.	Ch 1, 5-7 PT
ICT 3.2 Use powers of ten notation to represent very small and very large numbers.	Ch 2, 4 PT
Equilibrium and Stability	
ICT 4.1 Describe how feedback mechanisms are used in both designed and natural systems to keep changes within desired limits.	41, Ch 8-9 PT
ICT 4.2 Describe changes within equilibrium cycles in terms of frequency or cycle length and determine the highest and lowest values and when they occur.	Ch 9 PT
Patterns of Change	
ICT 5.1 Use simple linear equations to represent how a parameter changes with time.	4, Ch 9 PT
ICT 5.2 Observe patterns of change in trends or cycles and make predictions on what might happen in the future.	4, 32, 42, Ch 9 PT
Optimization	
ICT 6.1 Determine the criteria and constraints and make trade-offs to determine the best decision.	Ch 2, 4, 5 PT, 32
ICT 6.2 Use graphs of information for a decision-making problem to determine the optimum solution.	32, Ch 9 PT
Standard 7—Interdisciplinary Problem Solving Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.	
Connections	
IPS 1.1 Analyze science/technology/society problems and issues at the local level and plan and carry out a remedial course of action.	Ch 8 PT
IPS 1.2 Make informed consumer decisions by seeking answers to appropriate questions about products, services, and systems; determining the cost/benefit and risk/benefit tradeoffs; and applying this knowledge to a potential purchase.	Ch 1 PT
IPS 1.3 Design solutions to real-world problems of general social interest related to home, school, or community using scientific experimentation to inform the solution and applying mathematical concepts and reasoning to assist in developing a solution.	32
IPS 1.4 Describe and explain phenomena by designing and conducting investigations involving systematic observations, accurate measurements, and the identification and control of variables; by inquiring into relevant mathematical ideas; and by using mathematical and technological tools and procedures to assist in the investigation.	4, Ch 1, 5, 6, 9 PT
Strategies	
IPS 2.1 Students participate in an extended, culminating mathematics, science, and technology project. The project would require students to: • **Working Effectively:** Contributing to the work of a brainstorming group, laboratory partnership, cooperative learning group, or project team; planning procedures; identify and managing responsibilities of team members; and staying on task, whether working alone or as part of a group • **Gathering and Processing Information:** Accessing information from printed media, electronic databases, and community resources and using the information to develop a definition of the problem and to research possible solutions • **Generating and Analyzing Ideas:** Developing ideas for proposed solutions, investigating ideas, collecting data, and showing relationships and patterns in the data • **Common Themes:** Observing examples of common unifying themes, applying them to the problem, and using them to better understand the dimensions of the problem • **Realizing Ideas:** Constructing components or models, arriving at a solution, and evaluating the result • **Presenting Results:** Using a variety of media to present the solution and to communicate the results	Ch 1-10 PT

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
SCIENCE SKILLS		
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.		
LE 1.1	Compare and contrast the parts of plants, animals, and one-celled organisms.	
LE 1.1a	Living things are composed of cells. Cells provide structure and carry on major functions to sustain life. Cells are usually microscopic in size.	33
LE 1.1b	The way in which cells function is similar in all living things. Cells grow and divide, producing more cells. Cells take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or an organism needs.	33
LE 1.1c	Most cells have cell membranes, genetic material, and cytoplasm. Some cells have a cell wall and/or chloroplasts. Many cells have a nucleus.	33
LE 1.1d	Some organisms are single cells; others, including humans, are multicellular.	34
LE 1.1e	Cells are organized for more effective functioning in multicellular organisms. Levels of organization for structure and function of a multicellular organism include cells, tissues, organs, and organ systems.	34
LE 1.1f	Many plants have roots, stems, leaves, and reproductive structures. These organized groups of tissues are responsible for a plant's life activities.	34
LE 1.1g	Multicellular animals often have similar organs and specialized systems for carrying out major life activities.	34
LE 1.1h	Living things are classified by shared characteristics on the cellular and organism level. In classifying organisms, biologists consider details of internal and external structures. Biological classification systems are arranged from general (kingdom) to specific (species).	35
LE 1.2	Explain the functioning of the major human organ systems and their interactions.	
LE 1.2a	Each system is composed of organs and tissues which perform specific functions and interact with each other, e.g., digestion, gas exchange, excretion, circulation, locomotion, control, coordination, reproduction, and protection from disease.	43, 44
LE 1.2b	Tissues, organs, and organ systems help to provide all cells with nutrients, oxygen, and waste removal.	43
LE 1.2c	The digestive system consists of organs that are responsible for the mechanical and chemical breakdown of food. The breakdown process results in molecules that can be absorbed and transported to cells.	44
LE 1.2d	During respiration, cells use oxygen to release the energy stored in food. The respiratory system supplies oxygen and removes carbon dioxide (gas exchange).	44
LE 1.2e	The excretory system functions in the disposal of dissolved waste molecules, the elimination of liquid and gaseous wastes, and the removal of excess heat energy.	44
LE 1.2f	The circulatory system moves substances to and from cells, where they are needed or produced, responding to changing demands.	44
LE 1.2g	Locomotion, necessary to escape danger, obtain food and shelter, and reproduce, is accomplished by the interaction of the skeletal and muscular systems, and coordinated by the nervous system.	44
LE 1.2h	The nervous and endocrine systems interact to control and coordinate the body's responses to changes in the environment, and to regulate growth, development, and reproduction. Hormones are chemicals produced by the endocrine system; hormones regulate many body functions.	44
LE 1.2i	The male and female reproductive systems are responsible for producing sex cells necessary for the production of offspring.	44
LE 1.2j	Disease breaks down the structures or functions of an organism. Some diseases are the result of failures of the system. Other diseases are the result of damage by infection from other organisms (germ theory). Specialized cells protect the body from infectious disease. The chemicals they produce identify and destroy microbes that enter the body.	45
LE 2.1	Describe sexual and asexual mechanisms for passing genetic materials from generation to generation.	
LE 2.1a	Hereditary information is contained in genes. Genes are composed of DNA that makes up the chromosomes of cells.	47

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
LE 2.1b	Each gene carries a single unit of information. A single inherited trait of an individual can be determined by one pair or by many pairs of genes. A human cell contains thousands of different genes.	47
LE 2.1c	Each human cell contains a copy of all the genes needed to produce a human being.	47
LE 2.1d	In asexual reproduction, all the genes come from a single parent. Asexually produced offspring are genetically identical to the parent.	48
LE 2.1e	In sexual reproduction typically half of the genes come from each parent. Sexually produced offspring are not identical to either parent.	48
LE 2.2	Describe simple mechanisms related to the inheritance of some physical traits in offspring.	
LE 2.2a	In all organisms, genetic traits are passed on from generation to generation.	47
LE 2.2b	Some genes are dominant and some are recessive. Some traits are inherited by mechanisms other than dominance and recessiveness.	47
LE 2.2c	The probability of traits being expressed can be determined using models of genetic inheritance. Some models of prediction are pedigree charts and Punnett squares.	47
LE 3.1	Describe sources of variation in organisms and their structures and relate the variations to survival.	
LE 3.1a	The processes of sexual reproduction and mutation have given rise to a variety of traits within a species.	49
LE 3.1b	Changes in environmental conditions can affect the survival of individual organisms with a particular trait. Small differences between parents and offspring can accumulate in successive generations so that descendants are very different from their ancestors. Individual organisms with certain traits are more likely to survive and have offspring than individuals without those traits.	39, Ch 10 PT
LE 3.1c	Human activities such as selective breeding and advances in genetic engineering may affect the variations of species.	49, Ch 10 PT
LE 3.2	Describe factors responsible for competition within species and the significance of that competition.	
LE 3.2a	In all environments, organisms with similar needs may compete with one another for resources.	39
LE 3.2b	Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to permit it survival. Extinction of species is common. Fossils are evidence that a great variety of species existed in the past.	29, 39
LE 3.2c	Many thousands of layers of sedimentary rock provide evidence for the long history of Earth and for the long history of changing lifeforms whose remains are found in the rocks. Recently deposited rock layers are more likely to contain fossils resembling existing species.	29
LE 3.2d	Although the time needed for change in a species is usually great, some species of insects and bacteria have undergone significant change in just a few years.	29
LE 4.1	Observe and describe the variations in reproductive patterns of organisms, including asexual and sexual reproduction.	
LE 4.1a	Some organisms reproduce asexually. Other organisms reproduce sexually. Some organisms can reproduce both sexually and asexually.	48
LE 4.1b	There are many methods of asexual reproduction, including division of a cell into two cells, or separation of part of an animal or plant from the parent, resulting in the growth of another individual.	48
LE 4.1c	Methods of sexual reproduction depend upon the species. All methods involve the merging of sex cells to begin the development of a new individual. In many species, including plants and humans, eggs and sperm are produced.	48
LE 4.1d	Fertilization and/or development in organisms may be internal or external.	48
LE 4.2	Explain the role of sperm and egg cells in sexual reproduction.	
LE 4.2a	The male sex cell is the sperm. The female sex cell is the egg. The fertilization of an egg by a sperm results in a fertilized egg.	48
LE 4.2b	In sexual reproduction, sperm and egg each carry one-half of the genetic information for the new individual. Therefore, the fertilized egg contains genetic information from each parent.	48
LE 4.3	Observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).	

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
LE 4.3a	Multicellular organisms exhibit complex changes in development, which begin after fertilization. The fertilized egg undergoes numerous cellular divisions that will result in a multicellular organism, with each cell having identical genetic information.	50
LE 4.3b	In humans, the fertilized egg grows into tissue which develops into organs and organ systems before birth.	50
LE 4.3c	Various body structures and functions change as an organism goes through its life cycle.	50
LE 4.3d	Patterns of development vary among animals. In some species the young resemble the adult, while in others they do not. Some insects and amphibians undergo metamorphosis as they mature.	50
LE 4.3e	Patterns of development vary among plants. In seed-bearing plants, seeds contain stored food for early development. Their later development into adulthood is characterized by varying patterns of growth from species to species.	50
LE 4.3f	As an individual organism ages, various body structures and functions change.	50
LE 4.4	Observe and describe cell division at the microscopic level and its macroscopic effects.	
LE 4.4a	In multicellular organisms, cell division is responsible for growth, maintenance, and repair. In some one-celled organisms, cell division is a method of asexual reproduction.	48, 50
LE 4.4b	In one type of cell division, chromosomes are duplicated and then separated into two identical and complete sets to be passed to each of the two resulting cells. In this type of cell division, the hereditary information is identical in all the cells that result.	48
LE 4.4c	Another type of cell division accounts for the production of egg and sperm cells in sexually reproducing organisms. The eggs and sperm resulting from this type of cell division contain one-half of the hereditary information.	48
LE 4.4d	Cancers are a result of abnormal cell division.	45
LE 5.1	Compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium.	
LE 5.1a	Animals and plants have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition.	40
LE 5.1b	An organism's overall body plan and its environment determine the way that the organism carries out the life processes.	40
LE 5.1c	All organisms require energy to survive. The amount of energy needed and the method for obtaining this energy vary among cells. Some cells use oxygen to release the energy stored in food.	37
LE 5.1d	The methods for obtaining nutrients vary among organisms. Producers, such as green plants, use light energy to make their food. Consumers, such as animals, take in energy-rich foods.	36
LE 5.1e	Herbivores obtain energy from plants. Carnivores obtain energy from animals. Omnivores obtain energy from both plants and animals. Decomposers, such as bacteria and fungi, obtain energy by consuming wastes and/or dead organisms.	36
LE 5.1f	Regulation of an organism's internal environment involves sensing the internal environment and changing physiological activities to keep conditions within the range required for survival. Regulation includes a variety of nervous and hormonal feedback systems.	46
LE 5.1g	The survival of an organism depends on its ability to sense and respond to its external environment.	40
LE 5.2	Describe the importance of major nutrients, vitamins, and minerals in maintaining health and promoting growth, and explain the need for a constant input of energy for living organisms.	
LE 5.2a	Food provides molecules that serve as fuel and building material for all organisms. All living things, including plants, must release energy from their food, using it to carry on their life processes.	37, 46
LE 5.2b	Foods contain a variety of substances, which include carbohydrates, fats, vitamins, proteins, minerals, and water. Each substance is vital to the survival of the organism.	36, 46
LE 5.2c	Metabolism is the sum of all chemical reactions in an organism. Metabolism can be influenced by hormones, exercise, diet, and aging.	46, Ch 9 PT
LE 5.2d	Energy in foods in measured in Calories. The total caloric value of each type of food varies. The number of Calories a person requires varies from person to person.	46
LE 5.2e	In order to maintain a balanced state, all organisms have a minimum daily intake of each type of nutrient based on species, size, age, sex, activity, etc. An imbalance in any of the nutrients might result in weight gain, weight loss, or a diseased state.	46, Ch 9 PT

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
LE 5.2f	Contraction of infectious disease, and personal behaviors such as use of toxic substances and some dietary habits, may interfere with one's dynamic equilibrium. During pregnancy these conditions may also affect the development of the child. Some effects of these conditions are immediate; others may not appear for many years.	45
LE 6.1	Describe the flow of energy and matter through food chains and food webs.	
LE 6.1a	Energy flows through ecosystems in one direction, usually from the Sun, through producers to consumers and then to decomposers. This process may be visualized with food chains or energy pyramids.	37
LE 6.1b	Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem.	37, Ch 7 PT
LE 6.1c	Matter is transferred from one organism to another and between organisms and their physical environment. Water, nitrogen, carbon dioxide, and oxygen are examples of substances cycled between the living and nonliving environment.	37
LE 6.2	Provide evidence that green plants make food and explain the significance of this process to other organisms.	
LE 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 a sugar. The quantity of sugar molecules increases in green plants during photosynthesis in the presence of sunlight.	38, Ch 8 PT
LE 6.2b	The major source of atmospheric oxygen is photosynthesis. Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis.	38, Ch 8 PT
LE 6.2c	Green plants are the producers of food which is used directly or indirectly by consumers.	38, Ch 8 PT
LE 7.1	Describe how living things, including humans, depend upon the living and nonliving environment for their survival.	
LE 7.1a	A population consists of all individuals of a species that are found together at a given place and time. Populations living in one place form a community. The community and the physical factors with which it interacts compose an ecosystem.	38, 41
LE 7.1b	Given adequate resources and no disease or predators, populations (including humans) increase. Lack of resources, habitat destruction, and other factors such as predation and climate limit the growth of certain populations in the ecosystem.	38
LE 7.1c	In all environments, organisms interact with one another in many ways. Relationships among organisms may be competitive, harmful, or beneficial. Some species have adapted to be dependent upon each other with the result that neither could survive without the other.	39
LE 7.1d	Some microorganisms are essential to the survival of other living things.	39
LE 7.1e	The environment may contain dangerous levels of substances (pollutants) that are harmful to organisms. Therefore, the good health of environments and individuals requires the monitoring of soil, air, and water, and taking steps to keep them safe.	42
LE 7.2	Describe the effects of environmental changes on humans and other populations.	
LE 7.2a	In ecosystems, balance is the result of interactions between community members and their environment.	42
LE 7.2b	The environment may be altered through the activities of organisms. Alterations are sometimes abrupt. Some species may replace others over time, resulting in long-term gradual changes (ecological succession).	42
LE 7.2c	Overpopulation by any species impacts the environment due to the increased use of resources. Human activities can bring about environmental degradation through resource acquisition, urban growth, land-use decisions, waste disposal, etc.	42
LE 7.2d	Since the Industrial Revolution, human activities have resulted in major pollution of air, water, and soil. Pollution has cumulative ecological effects such as acid rain, global warming, or ozone depletion. The survival of living things on our planet depends on the conservation and protection of Earth's resources.	32, 42

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
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.		
PS 1.1	Explain daily, monthly, and seasonal changes on Earth.	
PS 1.1a	Earth's Sun is an average-sized star. The Sun is more than a million times greater in volume than Earth.	20
PS 1.1b	Other stars are like the Sun but are so far away that they look like points of light. Distances between stars are vast compared to distances within our solar system.	20
PS 1.1c	The Sun and the planets that revolve around it are the major bodies in the solar system. Other members include comets, moons, and asteroids. Earth's orbit is nearly circular.	21
PS 1.1d	Gravity is the force that keeps planets in orbit around the Sun and the Moon in orbit around the Earth.	21, Ch 4 PT
PS 1.1e	Most objects in the solar system have a regular and predictable motion. These motions explain such phenomena as a day, a year, phases of the Moon, eclipses, tides, meteor showers, and comets.	21, 22, 23
PS 1.1f	The latitude/longitude coordinate system and our system of time are based on celestial observations.	22
PS 1.1g	Moons are seen by reflected light. Our Moon orbits Earth, while Earth orbits the Sun. The Moon's phases as observed from Earth are the result of seeing different portions of the lighted area of the Moon's surface. The phases repeat in a cyclic pattern in about one month.	23
PS 1.1h	The apparent motions of the Sun, Moon, planets, and stars across the sky can be explained by Earth's rotation and revolution. Earth's rotation causes the length of one day to be approximately 24 hours. This rotation also causes the Sun and Moon to appear to rise along the eastern horizon and to set along the western horizon. Earth's revolution around the Sun defines the length of the year as 365 ¼ days.	22
PS 1.1i	The tilt of Earth's axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and season.	22
PS 1.1j	The shape of Earth, the other planets, and stars is nearly spherical.	21
PS 2.1	Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change.	
PS 2.1a	Nearly all the atmosphere is confined to a thin shell surrounding Earth. The atmosphere is a mixture of gases, including nitrogen and oxygen with small amounts of water vapor, carbon dioxide, and other trace gases. The atmosphere is stratified into layers, each having distinct properties. Nearly all weather occurs in the lowest layer of the atmosphere.	30
PS 2.1b	As altitude increases, air pressure decreases.	31
PS 2.1c	The rock at Earth's surface forms a nearly continuous shell around Earth called the lithosphere.	25
PS 2.1d	The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere.	25
PS 2.1e	Rocks are composed of minerals. Only a few rock-forming minerals make up most of the rocks of Earth. Minerals are identified on the basis of physical properties such as streak, hardness, and reaction to acid.	27, Ch 5 PT
PS 2.1f	Fossils are usually found in sedimentary rocks. Fossils can be used to study past climates and environments.	29
PS 2.1g	The dynamic processes that wear away Earth's surface include weathering and erosion.	28
PS 2.1h	The process of weathering breaks down rocks to form sediment. Soil consists of sediment, organic material, water, and air.	28
PS 2.1i	Erosion is the transport of sediment. Gravity is the driving force behind erosion. Gravity can act directly or through agents such as moving water, wind, and glaciers.	28
PS 2.1j	Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.	30, Ch 6 PT
PS 2.2	Describe volcano and earthquake patterns, the rock cycle, and weather and climate changes.	
PS 2.2a	The interior of Earth is hot. Heat flow and movement of material within Earth cause sections of Earth's crust to move. This may result in earthquakes, volcanic eruption, and the creation of mountains and ocean basins.	24, 25, 26

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
PS 2.2b	Analysis of earthquake wave data (vibrational disturbances) leads to the conclusion that there are layers within Earth. These layers—the crust, mantle, outer core, and inner core—have distinct properties.	24
PS 2.2c	Folded, tilted, faulted, and displaced rock layers suggest past crustal movement.	26
PS 2.2d	Continents fitting together like puzzle parts and fossil correlations provided initial evidence that continents were once together.	25
PS 2.2e	The Theory of Plate Tectonics explains how the "solid" lithosphere consists of a series of plates that "float" on the partially molten section of the mantle. Convection cells within the mantle may be the driving force for the movement of plates.	26
PS 2.2f	Plates may collide, move apart, or slide past one another. Most volcanic activity and mountain building occur at the boundaries of these plates, often resulting in earthquakes.	26
PS 2.2g	Rocks are classified according to their method of formation. The three classes of rocks are sedimentary, metamorphic, and igneous. Most rocks show characteristics that give clues to their formation conditions.	27
PS 2.2h	The rock cycle model shows how types of rock or rock material may be transformed from one type of rock to another.	27
PS 2.2i	Weather describes the conditions of the atmosphere at a given location for a short period of time.	30
PS 2.2j	Climate is the characteristic weather that prevails from season to season and year to year.	41
PS 2.2k	The uneven heating of Earth's surface is the cause of weather.	30
PS 2.2l	Air masses form when air remains stationary over a large section of Earth's surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses over that location.	31
PS 2.2m	Most local weather condition changes are caused by movement of air masses.	31
PS 2.2n	The movement of air masses is determined by prevailing winds and upper air currents.	31
PS 2.2o	Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries.	30, 31
PS 2.2p	High-pressure systems generally bring fair weather. Low-pressure systems usually bring cloudy, unstable conditions. The general movement of highs and lows is from west to east across the United States.	31
PS 2.2q	Hazardous weather conditions include thunderstorms, tornadoes, hurricanes, ice storms, and blizzards. Humans can prepare for and respond to these conditions if given sufficient warning.	31, 32
PS 2.2r	Substances enter the atmosphere naturally and from human activity. Some of these substances included dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things.	30, 32
PS 3.1	Observe and describe properties of materials, such as density, conductivity, and solubility.	
PS 3.1a	Substances have characteristic properties. Some of these properties include color, odor, phase at room temperature, density, solubility, heat and electrical conductivity, hardness, and boiling and freezing points.	7, Ch 2 PT, Ch 3 PT2
PS 3.1b	Solubility can be affected by the nature of the solute and solvent, temperature, and pressure. The rate of solution can be affected by the size of the particles, stirring, temperature, and the amount of solute already dissolved.	7, 10
PS 3.1c	The motion of particles helps to explain the phases (states) of matter as well as changes from one phase to another. The phase in which matter exists depends on the attractive forces among its particles.	9
PS 3.1d	Gases have neither a determined shape nor a definite volume. Gases assume the shape and volume of a closed container.	9
PS 3.1e	A liquid has definite volume, but takes the shape of a container.	9
PS 3.1f	A solid has definite shape and volume. Particles resist a change in position.	9
PS 3.1g	Characteristic properties can be used to identify different materials, and separate a mixture of substances into its components. For example, iron can be removed from a mixture by means of a magnet. An insoluble substance can be separated from a soluble substance by such processes as filtration, settling, and evaporation.	7, 10, Ch 2 PT

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
PS 3.1h	Density can be described as the amount of matter that is in a given amount of space. If two objects have equal volume, but one has more mass, the one with more mass is denser.	7
PS 3.1i	Buoyancy is determined by comparative densities.	7
PS 3.2	Distinguish between chemical and physical changes.	
PS 3.2a	During a physical change a substance keeps its chemical composition and properties. Examples of physical changes include freezing, melting, condensation, boiling, evaporation, tearing, and crushing.	8
PS 3.2b	Mixtures are physical combinations of materials and can be separated by physical means.	10
PS 3.2c	During a chemical change, substances react in characteristic ways to form new substances with different physical and chemical properties. Examples of chemical changes include burning of wood, cooking of an egg, rusting of iron, and souring of milk.	8
PS 3.2d	Substances are often placed in categories if they react in similar ways. Examples include metals, nonmetals, and noble gases.	6
PS 3.2e	The Law of Conservation of Mass states that during an ordinary chemical reaction matter cannot be created or destroyed. In chemical reactions, the total mass of the reactants equals the total mass of the products.	8
PS 3.3	Develop mental models to explain common chemical reactions and changes in states of matter.	
PS 3.3a	All matter is made up of atoms. Atoms are far too small to see with a light microscope.	6
PS 3.3b	Atoms and molecules are perpetually in motion. The greater the temperature, the greater the motion.	11
PS 3.3c	Atoms may join together in well-defined molecules or may be arranged in regular geometric patterns.	6
PS 3.3d	Interactions among atoms and/or molecules result in chemical reactions.	8
PS 3.3e	The atoms of any one element are different from the atoms of other elements.	6
PS 3.3f	There are more than 100 elements. Elements combine in a multitude of ways to produce compounds that account for all living and nonliving substances. Few elements are found in their pure form.	6
PS 3.3g	The periodic table is one useful model for classifying elements. The periodic table can be used to predict properties of elements (metals, nonmetals, noble gases).	6
PS 4.1	Describe the sources and identify the transformations of energy observed in everyday life.	
PS 4.1a	The Sun is a major source of energy for Earth. Other sources of energy include nuclear and geothermic energy.	11, 12, 20
PS 4.1b	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.	15, Ch 3 PT1
PS 4.1c	Most activities, in everyday life involve one form of energy being transformed into another. For example, the chemical energy in gasoline is transformed into mechanical energy in an automobile engine. Energy, in the form of heat, is almost always one of the products of energy transformations.	14
PS 4.1d	Different forms of energy include heat, light, electrical, mechanical, sound, nuclear, and chemical. Energy is transformed in many ways.	12
PS 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.	12
PS 4.2	Observe and describe heating and cooling events.	
PS 4.2a	Heat moves in predictable ways, flowing from warmer objects to cooler ones, until both reach the same temperature.	11
PS 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 a gas, currents will facilitate the transfer of heat (convection).	11
PS 4.2c	During a phase change, heat energy is absorbed or released. Energy is absorbed when a solid changes to a liquid and when a liquid changes to a gas. Energy is released when a gas changes to a liquid and when a liquid changes to a solid.	9
PS 4.2d	Most substances expand when heated and contract when cooled. Water is an exception, expanding when changing to ice.	11

Ch = Chapter PT = Performance Task

New York State Learning Standards and Major Understandings		Measuring Up® Lessons
PS 4.2e	Temperature affects the solubility of some substances in water.	7, 10
PS 4.3	Observe and describe energy changes as related to chemical reactions.	
PS 4.3a	In chemical reactions, energy is transferred into or out of a system. Light, electricity, or mechanical motion may be involved in such transfers in addition to heat.	8
PS 4.4	Observe and describe the properties of sound, light, magnetism, and electricity.	
PS 4.4a	Different forms of electromagnetic energy have different wavelengths. Some examples of electromagnetic energy are microwaves, infrared light, visible light, ultraviolet light, X-rays, and gamma rays.	12, 13
PS 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.	12, 13
PS 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.	12, 13
PS 4.4d	Electrical energy can be produced from a variety of energy sources and can be transformed into almost any other form of energy.	12
PS 4.4e	Electrical circuits provide a means of transferring electrical energy.	16, Ch 3 PT2
PS 4.4f	Without touching them, material that has been electrically charged attracts uncharged material, and may either attract or repel other charged material.	16
PS 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.	16
PS 4.5	Describe situations that support the principle of conservation of energy.	
PS 4.5a	Energy cannot be created or destroyed, but only changed from one form into another.	14
PS 4.5b	Energy can change from one form to another, although in the process some energy is always converted to heat. Some systems transform energy with less loss of heat than others.	14
PS 5.1	Describe different patterns of motion of objects.	
PS 5.1a	The motion of an object is always judged with respect to some other object or point. The idea of absolute motion or rest is misleading.	17
PS 5.1b	The motion of an object can be described by its position, direction of motion, and speed.	17
PS 5.1c	An object's motion is the result of the combined effect of all forces acting on the object. A moving object that is not subjected to a force will continue to move at a constant speed in a straight line. An object at rest will remain at rest.	17, 18
PS 5.1d	Force is directly related to an object's mass and acceleration. The greater the force, the greater the change in motion.	17
PS 5.1e	For every action there is an equal and opposite reaction.	17
PS 5.2	Observe, describe, and compare effects of forces (gravity, electric current, and magnetism) on the motion of objects.	
PS 5.2a	Every object exerts gravitational force on every other object. Gravitational force depends on how much mass the objects have and on how far apart they are. Gravity is one of the forces acting on orbiting objects and projectiles.	19
PS 5.2b	Electric currents and magnets can exert a force on each other.	16
PS 5.2c	Machines transfer mechanical energy from one object to another.	14, 18
PS 5.2d	Friction is a force that opposes motion.	18
PS 5.2e	A machine can be made more efficient by reducing friction. Some common ways of reducing friction include lubricating or waxing surfaces.	18
PS 5.2f	Machines can change the direction or amount of force, or the distance or speed of force required to do work.	18
PS 5.2g	Simple machines include a lever, a pulley, a wheel and axle, and an inclined plane. A complex machine uses a combination of interacting simple machines, e.g., a bicycle.	18

Ch = Chapter PT = Performance Task

Correlation to the New York City Grade 6 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 6.

NYC Science Scope and Sequence	NYS Learning Standard(s)	Measuring Up® Lessons
UNIT 1: Simple and Complex Machines		
How does energy play a role in our lives? How do machines impact our lives?		
Potential and kinetic energy	PS 4.1e	12
Mechanical energy	PS 4.1d, PS 5.2c	12, 14, 18
Machines can affect the magnitude or direction of a force required to do work, or the distance over which that force is applied.	PS 5.2f	18
Simple machines include the lever, the pulley, the wheel and axle, and the inclined plane.	PS 5.2g	18
Complex machines	PS 5.2g	18
Transformation of energy within simple and complex machines	PS 5.2c	14
Principle of the conservation of energy	PS 4.5a, PS 4.5b, PS 5.2c	14
Friction and machines	PS 5.2d, PS 5.2e	18
General Skills (from NYS Core Curriculum)		
1. Follow safety procedures in the classroom and laboratory.	S2.2a, S2.3a	2
2. Safely and accurately use the following measurement tools: • metric ruler • spring scale.	S2.1d	3
3. Use appropriate units for measured or calculated values.	S2.2d, S2.3c, S3.1a	3, 4, Ch. 1 PT
4. Recognize and analyze patterns and trends.	S3.2h	4, Ch. 1 PT
7. Sequence events.	S3.2a	4, Ch. 1 PT
8. Identify cause-and-effect relationships.	S3.1a, S3.2e	1, 4, Ch. 1 PT
UNIT 2: Weather		
How do matter and energy interact to produce weather patterns?		
Properties of Matter		
Matter is anything that takes up space and has mass.	PS 3.1a	Ch. 3 PT2, 7
Solids, liquids, and gases	PS 3.1a, PS 3.1c, PS 3.1d, PS 3.1e, PS 3.1f, PS 4.2c	Ch. 3 PT2, 7, 9, Ch. 2 PT
Relationship between phases of matter and particle motion	PS 3.1c, PS 3.1f, PS 4.2c, PS 4.2d	9, 11
Density	PS 3.1a, PS 3.1h	Ch. 3 PT2, 7, Ch. 2 PT
Heating and Cooling Events		
Principle of the conservation of energy	PS 4.5a, PS 4.5b	14
Transfer of heat: radiation, convection, and conduction	PS 4.1a, PS 4.2a, PS 4.2b	11, 20
Heat and its relationship to phase changes	PS 3.1c, PS 3.2a, PS 4.2c, PS 4.2d	9, 11, 8
Expansion and contraction	PS 4.2d	11

Ch = Chapter PT = Performance Task

NYC Science Scope and Sequence	NYS Learning Standard(s)	Measuring Up® Lessons
Weather		
Weather is the result of complex interactions of the atmosphere, hydrosphere, and lithosphere; all weather is caused by the unequal heating of the earth's surface.	PS 2.1a, PS 2.1c, PS 2.1d, PS 2.1j, PS 2.2i, PS 2.2k, PS 2.2r	25, 27, 30, 31, 32, Ch. 6 PT
Light energy vs. heat energy	PS 4.1a, PS 4.1c, PS 4.1d, PS 4.4a, PS 4.4b	11, 12, 13, 14, 20
Hydrosphere/atmosphere interactions: Water cycle, Precipitation	PS 2.1j	30, Ch. 6 PT
Weather factors: Pressure, relative humidity, temperature, wind	PS 2.2l	31
Air masses and fronts	PS 2.2l, PS 2.2m, PS 2.2n, PS 2.2o, PS 2.2p	31
Extreme weather events: hurricanes, tornadoes, blizzards, drought	PS 2.2q	31, 32
General Skills (from NYS Core Curriculum)		
1. Follow safety procedures in the classroom and laboratory.	S2.2a, S2.3a	2
2. Safely and accurately use the following measurement tools: • metric ruler • balance • graduated cylinder • thermometer.	S2.1d	3
3. Use appropriate units for measured or calculated values.	S2.2d, S2.3c, S3.1a	3, 4, Ch. 1 PT
4. Recognize and analyze patterns and trends.	S3.2h	4, Ch. 1 PT
5. Classify objects according to an established scheme and a student-generated scheme.	S3.1a	4, Ch. 1 PT
7. Sequence events.	S3.2a	4, Ch. 1 PT
8. Identify cause-and-effect relationships.	S3.1a, S3.2e	1, 4, Ch. 1 PT
Physical Setting Skills (from NYS Core Curriculum)		
1. Given the latitude and longitude of a location, indicate its position on a map and determine the latitude and longitude of a given location on a map.	PS 1.1f	22
7. Generate and interpret field maps including topographic and weather maps.	PS 2.2m, PS 2.2l, PS 2.2n	30, 31
8. Predict the characteristics of an air mass based on the origin of the air mass.	PS 2.2l, PS 2.2m, PS 2.2n	30, 31
9. Measure weather variables such as wind speed and direction, relative humidity, barometric pressure, etc.	PS 2.2n, PS 2.2p, PS 2.2q	31, 32
10. Determine the density of liquids, and regular- and irregular-shaped solids.	PS 3.1h, PS 3.1f	7, 9
UNIT 3: Diversity of Life		
How does the transfer of matter and energy through biological communities support diversity of living things?		
Kingdoms of Life		
What makes something "alive"?	LE 1.1a	33
The cell is a basic unit of structure and function of living things.	LE 1.1a, LE 1.1b, LE 1.1c	33
Unicellular vs. multicellular organisms	LE 1.1d, LE 1.1e, LE 1.1f, LE 1.1g	34
Biological classification systems	LE 1.1h	35

Ch = Chapter PT = Performance Task

NYC Science Scope and Sequence	NYS Learning Standard(s)	Measuring Up® Lessons
Food Chains and Food Webs		
Principle of the conservation of energy	PS 4.1d, PS 4.5a, PS 4.5b	12, 14
Flow of energy and matter through food chains and food webs	LE 5.1c, LE 5.2a, LE 6.1a, LE 6.1b, LE 6.1c	36, 46
Methods for obtaining nutrients	LE 5.1d, LE 5.1e, LE 5.2b	36, 46
Role of producers	LE 6.2a, LE 6.2b, LE 6.2c	38, Ch. 8 PT
Role(s) of consumers: idea of respiration/recycling; herbivores/carnivores/omnivores.	LE 5.1d, LE 5.1e, LE 5.2b, LE 5.2c, LE 5.2d, LE 5.2e	36, 46, Ch. 9 PT
The role of decomposers.	LE 5.1e	36
General Skills (from NYS Core Curriculum)		
1. Follow safety procedures in the classroom and laboratory.	S2.2a, S2.3a	2
4. Recognize and analyze patterns and trends.	S3.2h	4, Ch. 1 PT
6. Develop and use a dichotomous key.	S3.1a	4, Ch. 1 PT
7. Sequence events.	S3.2a	4, Ch. 1 PT
8. Identify cause-and-effect relationships.	S3.1a, S3.2e	1, 4, Ch 1 PT
Living Environment Skills (from NYS Core Curriculum)		
1. Manipulate a compound microscope to view microscopic objects.	LE 1.1a	EOB PT3
2. Determine the size of a microscopic object using a compound microscope.	LE 1.1a	EOB PT3
6. Classify living things according to a student-generated scheme and an established scheme.	LE 1.1h	35
7. Interpret and/or illustrate the energy flow in a food chain, energy pyramid, or food web.	LE 6.1a, LE 6.1b, LE 6.1c	37, Ch. 7 PT
9. Identify structure and function relationships in organisms.	LE 1.1a, LE 1.1b	33
UNIT 4: Interdependence		
How is interdependence essential in maintaining life on Earth?		
Climate and Biomes		
Climatic regions	PS 2.2j	41
Biomes: Tundra, Tropical Rain Forest, Temperate Forests, Grasslands, Desert	LE 7.1a, ICT 1.2, ICT 1.4, ICT 4.1	30, 32, 38, 41, 42, Ch. 8 PT
Seasonal variations	PS 1.1i	22
Effect of elevation	PS 2.1b	31
Global Warming: natural cycles vs. human impact	LE 7.2d, PS 2.2r, ICT 1.4, ICT 2.1, ICT 2.2, ICT 2.3, ICT 4.1, ICT 5.1, ICT 5.2, ICT 6.1, ICT 6.2, IPS 1.3	30, 32
Ecosystems and Interdependence		
Populations and definition of species	LE 1.1h, LE 7.1a	35, 38, 41
Communities	LE 7.1a	38, 41
Ecosystems (including basic abiotic factors such as water, nitrogen, CO_2, and oxygen)	LE 7.1a, LE 7.2a, LE 7.2b, ICT 1.2	30, 38, 41, 42
Factors affecting the population growth of organisms – Predator/prey relationships	LE 7.1b	38
Relationships among organisms: beneficial and harmful	LE 3.2a, LE 7.1c, LE 7.1d, LE 7.2c	39, 42

Ch = Chapter PT = Performance Task

NYC Science Scope and Sequence	NYS Learning Standard(s)	Measuring Up® Lessons
Effects of environmental changes on humans and other populations	LE 7.1e, LE 7.2a, LE 7.2b, LE 7.2c, LE 7.2d, ICT 5.2	32, 42
Adaptations for Survival		
Thermoregulation in plants and animals	LE 1.2e, LE 5.1a, LE 5.1b, LE 5.1f, LE 5.1g	40, 44, 46
Locomotion	LE 1.2a, LE 1.2g	43, 44
General Skills (from NYS Core Curriculum)		
1. Follow safety procedures in the classroom and laboratory.	S2.2a, S2.3a	2
2. Safely and accurately use the following measurement tool: • thermometer.	S2.1d	3
3. Use appropriate units for measured and calculated values.	S2.2d, S2.3c, S3.1a	3, 4, Ch. 1 PT
4. Recognize and analyze patterns and trends.	S3.2h	4, Ch. 1 PT
8. Identify cause-and-effect relationships.	S3.1a, S3.2e	1, 4, Ch. 1 PT
9. Use indicators and interpret results.	S3.1a, S3.2h	4, Ch. 1 PT
Living Environment Skills (from NYS Core Curriculum)		
6. Classify living things according to a student-generated scheme and an established scheme.	LE 1.1h	35
9. Identify structure and function relationships in organisms.	LE 1.1a, LE 1.1b	33
Physical Setting Skills (from NYS Core Curriculum)		
1. Given the latitude and longitude of a location, indicate its position on a map and determine the latitude and longitude of a given location on a map.	PS 1.1f	22
5. Use a magnetic compass to find cardinal directions.	PS 4.4g	16
6. Measure the angular elevation of an object, using appropriate instruments.	N/A	N/A
7. Generate and interpret field maps including topographic and weather maps.	PS 2.1l, PS 2.2m, PS 2.2n	30, 31

Ch = Chapter PT = Performance Task