



**Science SC.6.**

**Big Idea 1: The Practice of Science**

**Standard 1: (SC.6.N.1)**

- A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
- B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
- C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
- D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

\_\_\_\_ N.1.1. Define a problem from the sixth grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

\_\_\_\_ N.1.2. Explain why scientific investigations should be replicable

\_\_\_\_ N.1.3. Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each

\_\_\_\_ N.1.4. Discuss, compare, and negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation

\_\_\_\_ N.1.5. Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence

**Big Idea 2: The Characteristics of Scientific Knowledge**

**Standard 2: (SC.6.N.2)**

- A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.
- B. Scientific knowledge is durable and robust, but open to change.
- C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

\_\_\_\_ N.2.1. Distinguish science from other activities involving thought

\_\_\_\_ N.2.2. Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered

\_\_\_\_ N.2.3. Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds and possess varied talents, interests, and goals.

**Big Idea 3: the Role of Theories, Laws, Hypotheses**

**Standard 3: (SC.6.N.3)** The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science.

\_\_\_\_ N.3.1. Recognize and explain that a scientific theory is a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life

\_\_\_\_ N.3.2. Recognize, explain scientific law is a description of specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws

\_\_\_\_ N.3.3. Give several examples of scientific laws.

\_\_\_\_ N.3.4. Identify the role of models in the context of the sixth grade science benchmarks

**Big Idea 6: Earth Structures**

**Standard 4: (SC.6.E.6)** Over geologic time, internal and external sources of energy have continuously altered the features of Earth by means of both constructive, destructive forces. All life, including human civilization, is dependent on Earth's internal and external energy and material resources.

\_\_\_\_ E.6.1. Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition

\_\_\_\_ E.6.2. Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes and relate these landforms as they apply to Florida

**Big Idea 7: Earth Systems and Patterns**

**Standard 5: (SC.6.E.7)** The scientific theory of the evolution of Earth states that changes in our planet are driven by the flow of energy and the cycling of matter through dynamic interactions among the atmosphere, hydrosphere, cryosphere, geosphere, and biosphere, and the resources used to sustain human civilization on Earth.

\_\_\_\_ E.7.1. Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system

\_\_\_\_ E.7.2. Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate

\_\_\_\_ E.7.3. Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction and speed, and humidity and precipitation.

\_\_\_\_ E.7.4. Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, biosphere

\_\_\_\_ E.7.5. Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land

\_\_\_\_ E.7.6. Differentiate between weather and climate.

\_\_\_\_ E.7.7. Investigate how natural disasters have affected human life in Florida

\_\_\_\_ E.7.8. Describe ways human beings protect themselves from hazardous weather and sun exposure

\_\_\_\_ E.7.9. Describe how the composition and structure of the atmosphere protects life and insulates the planet

**Big Idea 11: Energy Transfer and Transformations**

**Standard 6: (SC.6.P.11)**

- A. Waves involve a transfer of energy without a transfer of matter.
- B. Water and sound waves transfer energy through a material.
- C. Light waves can travel through a vacuum and through matter.
- D. The Law of Conservation of Energy: Energy is conserved as it transfers from one object to another and from one form to another.



\_\_\_\_ P.11.1. Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa

### Big Idea 12: Motion of Objects

#### Standard 7: (SC.6.P.12)

- A. Motion is a key characteristic of all matter that can be observed, described, and measured.
- B. The motion of objects can be changed by forces.

\_\_\_\_ P.12.1. Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.

### Big Idea 13: Forces and Changes in Motion

#### Standard 8: (SC.6.P.13)

- A. It takes energy to change the motion of objects.
- B. Energy change is understood in terms of forces-- pushes or pulls.
- C. Some forces act through physical contact, while others act at a distance.

\_\_\_\_ P.13.1. Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational

\_\_\_\_ P.13.2. Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are

\_\_\_\_ P.13.3. Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both

### Big Idea 14: Organization Development of Living Organism

#### Standard 9: (SC.6.L.14)

- A. All living things share certain characteristics.
- B. The scientific theory of cells, also called cell theory, is a fundamental organizing principle of life on Earth.
- C. Life can be organized in a functional and structural hierarchy.
- D. Life is maintained by various physiological functions essential for growth, reproduction, and homeostasis.

\_\_\_\_ P.14.1. Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms

\_\_\_\_ P.14.2. Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life

\_\_\_\_ P.14.3. Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing

\_\_\_\_ P.14.4. Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.

\_\_\_\_ P.14.5. Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis

\_\_\_\_ P.14.6. Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites

### Big Idea 15: Diversity and Evolution of Living Organisms

#### Standard 10: (SC.6.L.15)

- A. The scientific theory of evolution is the organizing principle of life science.
- B. The scientific theory of evolution is supported by multiple forms of evidence.
- C. Natural Selection is a primary mechanism leading to change over time in organisms.

\_\_\_\_ L.15 Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains



**Seventh Grade Science SC.7.**

**Big Idea 1: The Practice of Science**

Standard 1: (SC.7.N.1)

- A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
- B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
- C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
- D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

\_\_\_\_ N.1.1. Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

\_\_\_\_ N.1.2. Differentiate replication (by others) from repetition

\_\_\_\_ N.1.3. Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation

\_\_\_\_ N.1.4. Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.

\_\_\_\_ N.1.5. Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.

\_\_\_\_ N.1.6. Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.

\_\_\_\_ N.1.7. Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community

**Big Idea 2: The Characteristics of Scientific Knowledge**

Standard 2: (SC.7.N.2)

- A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.
- B. Scientific knowledge is durable and robust, but open to change.
- C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

\_\_\_\_ N.2.1. Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered

**Big Idea 3: The Role of Theories, Law and Hypotheses**

Standard 3: (SC.7.N.3)The terms that describe examples of scientific knowledge, for example; "theory," "law," "hypothesis," and "model" have very specific meanings / functions in science

\_\_\_\_ N.3.1. Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them

\_\_\_\_ N.3.2. Identify the benefits and limitations of the use of scientific models

**Big Idea 6: Earth Structures**

Standard 4: (SC.7.E.6)Over geologic time, internal and external sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, is dependent on Earth's internal and external energy and material resources.

\_\_\_\_ E.6.1. Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.

\_\_\_\_ E.6.2. Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).

\_\_\_\_ E.6.3. Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating

\_\_\_\_ E.6.4. Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.

\_\_\_\_ E.6.5. Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.

\_\_\_\_ E.6.6. Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.

\_\_\_\_ E.6.7. Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.

**Big Idea 10: Forms of Energy**

Standard 5: (SC.7.P.10)

- A. Energy is involved in all physical processes and is a unifying concept in many areas of science.
- B. Energy exists in many forms and has the ability to do work or cause a change.

\_\_\_\_ P.10.1. Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors

\_\_\_\_ P.10.2. Observe and explain that light can be reflected, refracted, and/or absorbed

\_\_\_\_ P.10.3. Recognize that light waves, sound waves, and other waves move at different speeds in different materials.

**Big Idea 11: Energy Transfer and Transformations**

Standard 6: (SC.7.P.11)

- A. Waves involve a transfer of energy without a transfer of matter.
- B. Water and sound waves transfer energy through a material.
- C. Light waves can travel through a vacuum and through matter.
- D. The Law of Conservation of Energy: Energy is conserved as it transfers from one object to another and from one form to another.



\_\_\_ P.11.1. Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state

\_\_\_ P.11.2. Investigate and describe the transformation of energy from one form to another.

\_\_\_ P.11.3. Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.

\_\_\_ P.11.4. Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature

\_\_\_ L.17.1. Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web

\_\_\_ L.17.2. Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism

\_\_\_ L.17.3. Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites

### **Big Idea 15: Diversity and Evolution of Living Organisms**

Standard 7: (SC.7.L.15)

- A. The scientific theory of evolution is the organizing principle of life science.
- B. The scientific theory of evolution is supported by multiple forms of evidence.
- C. Natural Selection is a primary mechanism leading to change over time in organisms.

\_\_\_ L.15.1. Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.

\_\_\_ L.15.2. Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.

\_\_\_ L.15.3. Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species

### **Big Idea 16: Heredity and Reproduction**

Standard 8: (SC.7.L.16)

- A. Reproduction is characteristic of living things and is essential for the survival of species.
- B. Genetic information is passed from generation to generation by DNA; DNA controls the traits of an organism.
- C. Changes in the DNA of an organism can cause changes in traits, and manipulation of DNA in organisms has led to genetically modified organisms.

\_\_\_ L.16.1. Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another.

\_\_\_ L.16.2. Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees

\_\_\_ L.16.3. Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis

\_\_\_ L.16.4. Recognize and explore the impact of biotechnology on the individual, society and the environment.

### **Big Idea 17: Interdependence**

Standard 9: (SC.7.L.17)

- A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.
- B. Both human activities and natural events can have major impacts on the environment.
- C. Energy flows from the sun through producers to consumers.

**Eighth Grade Science SC.8.****Big Idea 1: The Practice of Science**

## Standard 1: (SC.8.N.1)

- A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
- B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
- C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
- D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

\_\_\_\_ N.1.1. Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

\_\_\_\_ N.1.2. Design and conduct a study using repeated trials and replication

\_\_\_\_ N.1.3. Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim

\_\_\_\_ N.1.4. Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data

\_\_\_\_ N.1.5. Analyze the methods used to develop a scientific explanation as seen in different fields of science

\_\_\_\_ N.1.6. Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence

**Big Idea 2: The Characteristics of Scientific Knowledge**

## Standard 2: (SC.8.N.2)

- A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.
- B. Scientific knowledge is durable and robust, but open to change.
- C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

\_\_\_\_ N.2.1. Distinguish between scientific and pseudoscientific ideas

\_\_\_\_ N.2.2. Discuss what characterizes science and its methods

**Big Idea 3: The Role of Theories, Law and Hypotheses**

Standard 3: The terms that describe examples of scientific knowledge, for example: "theory," "law," "hypothesis," and "model" have very specific meanings and functions within science. (SC.8.N.3)

\_\_\_\_ N.3.1. Select models useful in relating the results of their own investigations

\_\_\_\_ N.3.2. Explain why theories may be modified but are rarely discarded

**Big Idea 4: Science and Society**

Standard 4: As tomorrow's citizens, students should be able to identify issues about which society could provide input, formulate scientifically investigable questions about those issues, construct investigations of their questions, collect and evaluate data from their investigations, and develop scientific recommendations based upon their findings. (SC.8.N.4)

\_\_\_\_ N.4.1. Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels

\_\_\_\_ N.4.2. Explain how political, social, and economic concerns can affect science, and vice versa

**Big Idea 5: Earth in Space and Time**

Standard 5: The origin and eventual fate of the Universe still remains one of the greatest questions in science. Gravity and energy influence the formation of galaxies. Humankind's need to explore continues to lead to the development of knowledge and understanding of the nature of the Universe. (SC.8.E.5)

\_\_\_\_ E.5.1. Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance

\_\_\_\_ E.5.2. Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars

\_\_\_\_ E.5.3. Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition

\_\_\_\_ E.5.4. Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.

\_\_\_\_ E.5.5. Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).

\_\_\_\_ E.5.6. Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences

\_\_\_\_ E.5.7. Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, atmospheric conditions

\_\_\_\_ E.5.8. Compare various historical models of the Solar System, including geocentric and heliocentric

\_\_\_\_ E.5.9. Explain the impact of objects in space on each other including: 1) the Sun on the Earth including seasons and gravitational attraction 2) the Moon on the Earth, including phases, tides, and eclipses, and relative position of each body

\_\_\_\_ E.5.10. Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.

\_\_\_\_ E.5.11. Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs

\_\_\_\_ E.5.12. Summarize the effects of space exploration on the economy and culture of Florida



**Big Idea 8: Properties of Matter**

Standard 6:

- A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass which gives it inertia.
- B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.

The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately. (SC.8.P.8)

\_\_\_\_ P.8.1. Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases

\_\_\_\_ P.8.2. Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.

\_\_\_\_ P.8.3. Explore and describe the densities of various materials through measurement of their masses and volumes.

\_\_\_\_ P.8.4. Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample

\_\_\_\_ P.8.5. Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter

\_\_\_\_ P.8.6. Recognize that elements are grouped in the periodic table according to similarities of their properties.

\_\_\_\_ P.8.7. Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles

\_\_\_\_ P.8.8. Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts

\_\_\_\_ P.8.9. Distinguish among mixtures and pure substances

**Big Idea 9: Changes in Matter**

Standard 7: (SC.8.P.9)

- A. Matter can undergo a variety of changes.
- B. When matter is changed physically, generally no changes occur in the structure of the atoms or molecules composing the matter.
- C. When matter changes chemically, a rearrangement of bonds between the atoms occurs. This results in new substances with new properties.

\_\_\_\_ P.9.1. Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.

\_\_\_\_ P.9.2. Differentiate between physical changes and chemical changes

\_\_\_\_ P.9.3. Investigate and describe how temperature influences chemical changes

**Big Idea 18: Matter and Energy Transformations**

Standard 8: (SC.8.L.18)

- A. Living things all share basic needs for life.
- B. Living organisms acquire the energy they need for life processes through various metabolic pathways (photosynthesis and cellular respiration).
- C. Matter and energy are recycled through cycles such as the carbon cycle.

\_\_\_\_ L.18.1. Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.

\_\_\_\_ L.18.2. Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide

\_\_\_\_ L.18.3. Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.

\_\_\_\_ L.18.4. Cite evidence that living systems follow the Laws of Conservation of Mass and Energy