

Galway Science 5th Grade Curriculum Guide

NYS PI	Major Understandings: The Living Environment
1.2	Explain the functioning of the major human organ systems and their interactions.
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.
1.2b	Tissues, organs, and organ systems help to provide all cells with nutrients, oxygen, and waste removal.
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.
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).
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.
1.2f	The circulatory system moves substances to and from cells, where they are needed or produced, responding to changing demands.
5.1	Compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium.
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.
5.1g	The survival of an organism depends on its ability to sense and respond to its external environment.
6.1	Describe the flow of energy and matter through food chains and food webs.
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.
6.1b	Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem.
6.2	Provide evidence that green plants make food and explain the significance of this process to other organisms.
6.2b	The major source of atmospheric oxygen is photosynthesis. Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis.
6.2c	Green plants are the producers of food which is used directly or indirectly by consumers.
7.1	Describe how living things, including humans, depend upon the living and nonliving environment for their survival.
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.
7.1d	Some microorganisms are essential to the survival of other living things.
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.
7.2	Describe the effects of environmental changes on humans and other populations.
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).
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.
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.

NYS PI	Major Understandings: The Physical Setting
1.1	Explain daily, monthly, and seasonal changes on Earth.
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.
2.1	Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change.

Based on NYS Core Curriculum Performance Indicators and Major Understandings. Prepared with teacher input summer curriculum work 2008.

NYS PI	Major Understandings: The Physical Setting continued
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.
2.1b	As altitude increases, air pressure decreases.
2.1g	The dynamic processes that wear away Earth's surface include weathering and erosion.
2.1j	Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.
2.2	Describe volcano and earthquake patterns, the rock cycle, and weather and climate changes.
2.2i	Weather describes the conditions of the atmosphere at a given location for a short period of time.
2.2j	Climate is the characteristic weather that prevails from season to season and year to year.
2.2k	The uneven heating of Earth's surface is the cause of weather.
2.2l	Air masses form when air remains nearly 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.
2.2m	Most local weather condition changes are caused by movement of air masses.
2.2n	The movement of air masses is determined by prevailing winds and upper air currents.
2.2o	Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries.
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.
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.
3.1	Observe and describe properties of materials, such as density, conductivity, and solubility.
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.
3.1d	Gases have neither a determined shape nor a definite volume. Gases assume the shape and volume of a closed container.
3.1e	A liquid has definite volume, but takes the shape of a container.
3.1f	A solid has definite shape and volume. Particles resist a change in position.
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.

Based on NYS Core Curriculum Performance Indicators and Major Understandings. Prepared with teacher input summer curriculum work 2008.

Based on NYS Core Curriculum Performance Indicators and Major Understandings. Prepared with teacher input summer curriculum work 2008.