



Public Schools of North Carolina
 State Board of Education | Department of Public Instruction
 North Carolina Extended Essential Standards
 Science 6-8

The *Alternate Achievement Standards for Students With the Most Significant Cognitive Disabilities Non-Regulatory Guidance* states, "...materials should show a clear link to the content standards for the grade in which the student is enrolled, although the grade-level content may be reduced in complexity or modified to reflect pre-requisite skills." Throughout the Standards descriptors such as, describe, classify, identify, compare, etc, should be interpreted to mean that the students will be taught and tested according to their mode of communication.

6 th Grade Physical Science Forces and Motion		
Essential Standard	Essence	Extended Essential Standard
6.P.1 Understand the properties of waves and the wavelike property of energy in earthquakes, light and sound.	Understand that energy produces waves	EX.6.P.1 Identify properties of waves
Clarifying Objectives 6.P.1.1 Compare the properties of waves to the wavelike property of energy in earthquakes, light and sound. 6.P.1.2 Explain the relationship among visible light, the electromagnetic spectrum, and sight. 6.P.1.3 Explain the relationship among the rate of vibration, the medium through which vibrations travel, sound and hearing.		Clarifying Objectives EX.6.P.1.1 Recognize that vibrations produce waves. EX.6.P.1.2 Identify types of waves (e.g. water, light, seismic, sound).



6 th Grade Physical Science Matter, Properties and Change		
Essential Standard	Essence	Extended Essential Standard
<p>6.P.2 Understand the structure, classifications and physical properties of matter.</p>	<p>Understand structures and physical properties of matter</p>	<p>EX.6.P.2 Compare the structure and properties of matter before and after they undergo a change.</p>
<p>Clarifying Objectives</p> <p>6.P.2.1 Recognize that all matter is made up of atoms (4D/M1a) and atoms of the same element are all alike, but are different from the atoms of other elements.</p> <p>6.P.2.2 Explain the effect of heat on the motion of atoms and molecules through a description of what happens to particles during a change in phase.</p> <p>6.P.2.3. Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.</p>		<p>Clarifying Objectives</p> <p>EX.6.P.2.1 Identify the melting point and boiling points of water.</p> <p>EX.6.P.2.2 Understand the difference between mass and volume.</p> <p>EX.6.P.2.3 Compare densities of water with other solid and liquid matter (e.g. oil and water, water and ice).</p>



6 th Grade Earth and Environmental Science Earth Systems, Structures and Processes		
Essential Standard	Essence	Extended Essential Standard
<p>6.E.1 Understand the structure of the earth and how interactions of constructive and destructive forces have resulted in changes in the surface of the Earth over time and the effects of the lithosphere on humans.</p>	<p>Understand structures and factors that impact the Earth's geosphere</p>	<p>EX.6.E.1 Compare structures of the Earth's surface.</p>
Clarifying Objectives	<p>6.E.1.1 Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density.</p> <p>6.E.1.2 Explain how crustal plates and ocean basins are formed, move and interact using earthquakes, heat flow and volcanoes to reflect forces within the earth.</p> <p>6.E.1.3 Explain how the formation of soil is related to the parent rock type and the environment in which it develops.</p> <p>6.E.1.4 Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship</p>	Clarifying Objectives
		<p>EX.6.E.1.1 Identify Earth's land features (e.g. mountains, valleys, volcanoes, islands).</p> <p>EX.6.E.1.2 Compare Earth's land features (e.g. mountains, valleys) by using models, pictures, diagrams, and maps.</p>



6 th Grade Earth and Life Science Structures & Functions of Living Organisms			
Essential Standard		Essence	Extended Essential Standard
6.L.1 Understand the structures, processes and behaviors of plants that enable them to survive and reproduce.		Understand how plants survive and reproduce	EX.6.L.1 Understand the major parts of a plant, including seed, root, stem, leaf, and flower, and their functions.
Clarifying Objectives	6.L.1 .1 Summarize the basic structures and functions of flowering plants required for survival, reproduction and defense. 6.L.1 .2 Explain the significance of the processes of photosynthesis, respiration, and transpiration to the survival of green plants and other organisms		Clarifying Objective EX.6.L.1.1 Identify functions of the parts of a plant. EX.6.L.1.2 Understand how the functions of plant structures (e.g. leaves, stem, roots, bloom) are essential for life.



6 th Grade Life Science Ecosystem			
Essential Standard		Essence	Extended Essential Standard
6.L.2 Understand the flow of energy through ecosystems and the responses of populations to the biotic and abiotic factors in their environment.		Understand the flow of energy through an ecosystem	EX.6.L.3 Understand the role of producers and consumers in an ecosystem.
Clarifying Objectives	<p>6.L.2.1 Summarize how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within food chains and food webs (terrestrial and aquatic) from producers to consumers to decomposers</p> <p>6.L.2.2 Explain how plants respond to external stimuli (including dormancy and forms of tropism) to enhance survival in an environment</p> <p>6.L.2.3 Summarize how the abiotic factors (such as temperature, water, sunlight, and soil quality) of biomes (freshwater, marine, forest, grasslands, desert, Tundra) affect the ability of organisms to grow, survive and/or create their own food through photosynthesis.</p>		Clarifying Objectives
			<p>EX.6.L.3.1 Define producers and consumers.</p> <p>EX.6.L.3.2 Classify living things as either producers or consumers.</p>



7 th Grade Physical Science Forces and Motion		
Essential Standard	Essence	Extended Essential Standard
7.P.1 Understand motion, the effects of forces on motion and the graphical representations of motion.	Understand the affects of forces on motion	EX.7.P.1 Understand balanced and unbalanced forces.
Clarifying Objectives 7.P.1.1 Explain how the motion of an object by can be described by its position, direction of motion, and speed with respect to some other object. 7.P.1.2 Explain the effects of balanced and unbalanced forces acting on an object (including friction, gravity and magnets). 7.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time. 7.P.1.4 Interpret distance versus time graphs for constant speed and variable motion.		Clarifying Objectives EX.7.P.1.1 Identify balanced and unbalanced forces. EX.7.P.1.2 Understand that motion is produced by unbalanced forces. EX.7.P.1.3 Understand that gravity is an unbalanced force that causes objects to fall towards the Earth.



7 th Grade Physical Science Matter, Properties and Change		
Essential Standard	Essence	Extended Essential Standard
No student expectations.	<i>*Atoms are the smallest units of matter</i>	EX.7.P.2 Identify an atom as the smallest unit of matter.
Clarifying Objectives		EX.7.P.2.1 Understand matter is made of smaller units. EX.7 P.2.2 Understand units are combined to make a whole object.



7 th Grade Earth and Environmental Science Earth Systems, Structures and Processes		
Essential Standard	Essence	Extended Essential Standard
<p>7.E.1 Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth’s atmosphere, weather and climate and the effects of the atmosphere on humans.</p>	<p>Understand the cycling of matter</p>	<p>EX.7.E.1 Understand the water cycle.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Clarifying Objectives</p>	<p>7.E.1.1 Compare the composition, properties and structure of Earth’s atmosphere to include: mixtures of gases and differences in temperature and pressure within layers</p> <p>7.E.1.2 Explain how the cycling water in and out of the atmosphere and atmospheric conditions relate to the weather patterns on Earth.</p> <p>7.E.1.3 Explain how the relationship between the movement of air masses, high and low pressure systems, and frontal boundaries to storms (include thunderstorms, hurricanes, and tornadoes) and other weather conditions that may result</p> <p>7.E.1.4 Predict weather condition and patters based on information obtained from:</p> <ul style="list-style-type: none"> • Weather data collected from direct observations and measurement (wind speed and direction, air temperature, humidity and air pressure) • Weather maps, satellites and radar • Cloud shapes and types associated with elevation 	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Clarifying Objectives</p>
		<p>EX.7.E.1.1 Recognize the water left in an open container evaporates over time.</p> <p>EX.7.E.1.2 Identify the parts of the water cycle (evaporation, condensation, precipitation, run off).</p> <p>EX.7.E.1.3 Describe the consequences of too much or too little water (e.g. drought, flooding).</p>



Clarifying Objective	7.E.1.5 Explain the influences of convection, global winds and jet stream on weather and climate conditions. 7.E.1.6 Conclude that the good health of humans requires: monitoring the atmosphere, maintaining air quality and stewardship		Clarifying Objective	
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7 th Grade Life Science Structures and Functions of Living Organisms		
Essential Standard	Essence	Extended Essential Standard
<p>7.L.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.</p>	<p>Understand how living things survive, reproduce, and perform basic life functions</p>	<p>EX.7.L.1 Describe characteristics of living organisms that enable them to survive.</p>
<p>Clarifying Objectives</p> <p>7.L.1.1 Compare the structures and life functions of single-celled organisms that carry out all of the basic functions of life including: Euglena; Amoeba; Paramecium; Volvox.</p> <p>7.L.1.2 Compare the structures and functions of plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, chloroplasts, mitochondria, and vacuoles).</p> <p>7.L.1.3 Summarize the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.</p> <p>7.L.1.4 Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.</p>		<p>Clarifying Objectives</p> <p>EX.7.L.1.1 Identify that insects spread pollen to help flowering plants make seeds.</p> <p>EX.7.L.1.2 Describe ways that a plant and an animal help each other.</p> <p>EX.7.L.1.3 Describe characteristics that help a plant or an animal survive.</p>



7 th Grade Life Science Ecosystems		
Essential Standard	Essence	Extended Essential Standard
No student expectations.	<i>*Understand Decomposers</i>	EX.7.L.2 Understand the role of decomposers in an ecosystem.
Clarifying Objectives		EX.7.L.2.1 Define decomposers. EX.7.L.2.2 Understand how decomposers and consumers are different. EX.7.L.2.3 Classify living organisms as producers, consumers, or decomposers.



8 th Grade Physical Science Forces and Motion		
Essential Standard	Essence	Extended Essential Standard
No student expectations.	<i>*Energy can cause motion and change</i>	EX.8.P.2 Understand that energy has the ability to cause motion or create change.
Clarifying Objectives		Clarifying Objectives EX.8.P.2.1 Identify forms of energy, such as light, heat, electrical, and energy of motion. EX.8.P.2.2 Describe the results of applying electrical energy (turn on lights, make motors run); heat energy (burn wood, change temperature); and energy of motion (go faster, change direction). EX.8.P.2.3 Identify that a hot object will make a cold object warm when they touch.



8 th Grade Physical Science Matter, Properties and Change		
Essential Standard	Essence	Extended Essential Standard
<p>8.P.1 Understand the properties of matter and changes that occur when matter interacts in a closed system.</p>	<p>Understand chemical and physical changes in a closed system</p>	<p>EX.8.P.1 Understand the interactions of matter and energy and the changes that occur.</p>
<p>Clarifying Objectives</p> <p>8.P.1.1 Classify matter as elements, compounds, or mixtures based on how the atoms are packed together in arrangements.</p> <p>8.P.1.2 Explain how the physical properties of elements and their reactivity have been used to produce the current model of the Periodic Table of elements.</p> <p>8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.</p> <p>8.P.1.4 Explain how the idea of atoms and a balanced chemical equation support the law of conservation of mass.</p>		<p>Clarifying Objectives</p> <p>EX.8.P.1.1 Identify that a whole object weighs the same as all of its parts together.</p>



8 th Grade Earth and Environmental Science Earth Systems, Structures and Processes		
Essential Standard	Essence	Extended Essential Standard
8.E.1 Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.	Understand the impact of human activity on the hydrosphere	EX.8.E.1 Understand the hydrosphere.
Clarifying Objectives 8.E.1.1 Explain the structures of the hydrosphere including: water distribution on earth, local river basins and water availability 8.E.1.2 Summarize evidence that Earth’s oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms: estuaries, marine ecosystems, upwelling, behavior of gases in the marine environment, deep ocean technology and understandings gained 8.E.1.3 Predict the safety and potability of water supplies in North Carolina based on physical and biological factors, including: temperature, dissolved oxygen, pH, nitrates and phosphates, turbidity, and bio-indicators 8.E.1.4 Conclude that the good health of humans requires: Monitoring of the hydrosphere; Water quality standards; Methods of water treatment; Maintaining safe water quality; Stewardship.		Clarifying Objectives EX.8.E.1.1 Identify water features on the earth’s surface (oceans, lakes, rivers, glaciers). EX.8.E.1.2 Compare Earth’s saltwater and freshwater features (oceans, lakes, rivers). EX.8.E.1.3 Understand that human health requires monitoring of the hydrosphere and stewardship (e.g. water conservation, pollution).



8 th Grade Life Science Structures and Functions of Living Organisms			
Essential Standard		Essence	Extended Essential Standard
8.L.1. Understand the hazards caused by agents of diseases that affect living organisms.		Understand diseases that affect living things	EX.8.L.1 Understand that germs can cause disease.
Clarifying Objectives	8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease. 8.L.1.2 Explain the difference between epidemic and pandemic as it relates to the spread, treatment and prevention of disease.		Clarifying Objectives
			EX.8.L.1.1 Recognize that germs can cause illness EX.8.L.1.2 Identify illnesses that may be caused by germs. EX.8.L.1.3 Demonstrate hygienic practices that reduce the presence of germs. EX.8.L.1.4 Describe minor treatments to prevent infection and the spread of disease (Band-Aid on cut; Cover mouth for sneeze or cough; Use and disposal of tissues).



8 th Grade Life Science Ecosystem		
Essential Standard	Essence	Extended Essential Standard
8.L.2 Understand how organisms interact with and respond to the biotic and abiotic components of their environment.	Understand how organisms interact and respond to their environment	EX.8.L.2 Explain the interdependence of living organisms in the environment.
Clarifying Objectives 8.L.2.1 Explain how factors such as food, water, shelter and space affect populations in an ecosystem. 8.L.2.2 Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions including: Coexistence and cooperation; Competition (predator/prey); Parasitism; Mutualism.		Clarifying Objectives EX.8.L.2.1 Identify that in a simple food chain, energy transfers from the Sun to plants (producers), to animals (consumers), and to organisms that cause decay (decomposers). EX.8.L.2.2 Understand the relationship between living things and their environment.