



# Alabama Achievement Level Descriptors

## Grade 7 – Science

The descriptions below provide a brief summary of typical performance for each level. The skills identified in each descriptor represent, but are not all-inclusive of, the skills a student should be able to demonstrate at each achievement level.

	Level 1: Emerging Learner	Level 2: Developing Learner	Level 3: Proficient Learner	Level 4: Distinguished Learner
From Molecules to Organisms: Structures and Processes	<ul style="list-style-type: none"> <li>Recognizes a cell is the basic building block of life.</li> <li>Recognizes that there are different types of cells.</li> <li>Recognizes that there are different cell structures.</li> <li>Recognizes that the body is made up of different organs.</li> </ul>	<ul style="list-style-type: none"> <li>Recognizes that the body is a set of subsystems.</li> <li>Defines prokaryotic and eukaryotic cells.</li> <li>Identifies different cell structures.</li> <li>Describes the different organs of the body.</li> </ul>	<ul style="list-style-type: none"> <li>Explains claims in the cell theory.</li> <li>Explains the structure and function of prokaryotic and eukaryotic cells.</li> <li>Explains sexual and asexual reproduction.</li> <li>Describes the functions of specific cell structures.</li> <li>Describes how organs interact and work together to accomplish specific functions.</li> </ul>	<ul style="list-style-type: none"> <li>Analyzes how the different structures, functions, and processes of cells and organs contribute to the survival of living things.</li> </ul>
Ecosystems: Interactions, Energy, and Dynamics	<ul style="list-style-type: none"> <li>Recognizes that organisms need energy to grow and survive.</li> <li>Recognizes that matter and energy flow through organisms/ecosystems.</li> <li>Defines abiotic and biotic parts of an ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>Recognizes conservation of energy.</li> <li>Recognizes conservation of matter.</li> <li>Recognizes that food is broken down by chemical reactions to create new molecules.</li> <li>Identifies the reactants and products of photosynthesis.</li> <li>Identifies the reactants and products of cellular respiration.</li> </ul>	<ul style="list-style-type: none"> <li>Explains the flow of energy in an ecosystem.</li> <li>Analyzes the cycling of matter between abiotic and biotic parts of ecosystems.</li> <li>Explains conservation of matter in an ecosystem.</li> <li>Explains how food is broken down through chemical reactions to create new molecules that support organisms.</li> </ul>	<ul style="list-style-type: none"> <li>Predicts how a disruption in the cycling of matter in an ecosystem affects the flow of energy in the ecosystem.</li> <li>Predicts how relationships between and among organisms affect populations in the ecosystem.</li> <li>Predicts the effect(s) of limiting resource(s) in a given population/ecosystem.</li> </ul>



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<b>Ecosystems: Interactions, Energy, and Dynamics</b>	<ul style="list-style-type: none"> <li>▪ Recognizes that some organisms use photosynthesis to obtain energy from the environment.</li> <li>▪ Recognizes that organisms use cellular respiration to release energy from food molecules.</li> <li>▪ Defines ecosystem.</li> <li>▪ Recognizes that organisms in an ecosystem interact.</li> <li>▪ Defines and compares biodiversity in an ecosystem.</li> <li>▪ Describes various animal behaviors.</li> <li>▪ Describes various plant structures.</li> <li>▪ Recognizes that traits are unique characteristics that an individual has that are determined by genetics or the environment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recognizes that there is a connection between photosynthesis and cellular respiration.</li> <li>▪ Identifies factors that affect biodiversity.</li> <li>▪ Identifies the resources available to organisms in an ecosystem.</li> <li>▪ Explains how plants and animals reproduce.</li> <li>▪ Recognizes that plants and animals within the same population can have different genetic traits.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains that photosynthesis and cellular respiration cycle matter and energy into and out of organisms.</li> <li>▪ Explains relationships between and among organisms.</li> <li>▪ Explains how biodiversity can be used to measure the health of an ecosystem.</li> <li>▪ Demonstrates how changes to an ecosystem lead to shifts in populations.</li> <li>▪ Analyzes how resource availability affects organisms and ecosystems.</li> <li>▪ Explains how characteristic animal behaviors and plant structures affect the reproduction of animals and plants.</li> <li>▪ Analyzes how environmental conditions and genetic factors influence the growth of organisms/populations.</li> <li>▪ Explains ecosystem services.</li> <li>▪ Develops a design solution that maintains biodiversity and ecosystem services.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Predicts if plants/animals can successfully reproduce in given circumstances.</li> <li>▪ Predicts if organisms will grow and survive given certain conditions and genetic factors.</li> <li>▪ Defends a design solution that maintains biodiversity and ecosystem services.</li> </ul>



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<b>Heredity: Influence and Variation of Traits</b>	<ul style="list-style-type: none"> <li>▪ Recognizes that offspring can look different from their parents.</li> <li>▪ Identifies the basic structure and function of DNA.</li> <li>▪ Identifies the difference between DNA, genes, and traits.</li> <li>▪ Recognizes that genes influence traits.</li> <li>▪ Defines genetic mutations.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recognizes that parents pass genes on to their offspring.</li> <li>▪ Recognizes a genetic mutation in a DNA strand.</li> <li>▪ Recognizes that technology can change which traits are inherited by offspring.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains that genetic variations between parents and offspring occur as a result of inherited genes.</li> <li>▪ Explains how genetic mutations impact the structure and function of organisms.</li> <li>▪ Describes the impact of technologies on the inheritance and/or appearance of traits in organisms.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Predicts the appearance of certain traits in offspring given the genetic information of the parents.</li> <li>▪ Describes the types and effects of various types of technologies that impact inherited traits.</li> </ul>



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<b>Unity and Diversity</b>	<ul style="list-style-type: none"> <li>▪ Recognizes that organisms evolve over time.</li> <li>▪ Defines natural selection.</li> <li>▪ Recognizes that organisms adapt to their environment.</li> <li>▪ Recognizes that there are various types of evidence to support the concept of natural selection.</li> <li>▪ Recognizes that some organisms/fossils share the same anatomical features.</li> <li>▪ Recognizes that some organisms share the same method of embryological development.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Describes that organisms that adapt to their environment are more likely to survive and reproduce.</li> <li>▪ Identifies organisms/fossils that share the same anatomical features.</li> <li>▪ Identifies organisms that share the same method of embryological development.</li> <li>▪ Identifies examples of natural selection.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Determines the patterns of change in anatomical structure of organisms.</li> <li>▪ Explains anatomical similarities and differences among modern organisms and/or fossils.</li> <li>▪ Analyzes pictorial data to compare patterns in embryological development across multiple species.</li> <li>▪ Explains that natural selection acts over generations and can affect an organism's ability to pass on inherited traits to future generations.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Traces evolutionary pathways of organisms over time.</li> <li>▪ Predicts the embryological development of one species based on patterns observed in other species.</li> <li>▪ Predicts if an organism's traits will affect its ability to survive and reproduce in a given ecosystem.</li> <li>▪ Explains how the frequency of certain traits within a population might change over time due to environmental pressures.</li> </ul>
<b>Earth's Place in the Universe</b>	<ul style="list-style-type: none"> <li>▪ Recognizes that celestial bodies move over time.</li> <li>▪ Recognizes that gravity acts on all objects.</li> <li>▪ Recognizes basic measurements and positions of celestial objects.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Models how celestial bodies move and are positioned to create various celestial events.</li> <li>▪ Recognizes that gravity can affect the motion of an object.</li> <li>▪ Determines scale properties of objects in the solar system.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains patterns of the observed motions of celestial bodies.</li> <li>▪ Explains the role of gravity affecting the motions of celestial bodies within galaxies and the solar system.</li> <li>▪ Models scale properties of objects in the solar system.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Predicts future occurrences of celestial events.</li> <li>▪ Predicts the motion of a celestial body over time.</li> <li>▪ Estimates the scale properties of one celestial object based on the scale properties of other celestial objects.</li> </ul>



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<b>Earth's Systems</b>	<ul style="list-style-type: none"> <li>▪ Recognizes patterns in rock layers.</li> <li>▪ Defines specific geologic processes such as weathering, erosion, sedimentation, deposition, and the rock cycle.</li> <li>▪ Recognizes that Earth's surface changes over time.</li> <li>▪ Recognizes that Earth's crust contains tectonic plates that move over time.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recognizes that geologic events can leave evidence in rock layers.</li> <li>▪ Identifies the geologic process that caused a physical feature on Earth.</li> <li>▪ Identifies/describes the plate motions that caused a physical feature on Earth.</li> <li>▪ Models biogeochemical cycles of Earth.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains patterns of Earth's major historical events based on geologic evidence.</li> <li>▪ Determines how different geologic processes shaped Earth's history over varying time and special scales.</li> <li>▪ Explains past plate motion based on the distribution of fossils, rocks, continental shapes, and seafloor structures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Analyzes geologic evidence to support a claim.</li> <li>▪ Predicts how a given geologic process may impact Earth.</li> <li>▪ Predicts how a given plate motion may impact Earth.</li> <li>▪ Describes the effects of a change in the biogeochemical cycle and/or flow of energy that drives them.</li> </ul>



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<b>Earth's Systems</b>	<ul style="list-style-type: none"> <li>▪ Recognizes that certain landforms and seafloor characteristics are caused by tectonic plate movements.</li> <li>▪ Recognizes that matter and energy are cycled on Earth.</li> <li>▪ Recognizes that there are different types of rocks.</li> <li>▪ Describes the layers of Earth, including the Earth's core.</li> <li>▪ Identifies a chemical change on Earth.</li> <li>▪ Identifies a physical change on Earth.</li> <li>▪ Defines hot and cold air masses.</li> <li>▪ Recognizes that Earth rotates about its axis.</li> <li>▪ Identifies ways humans impact natural processes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recognizes that rocks change over time.</li> <li>▪ Models Earth's layers and core.</li> <li>▪ Models the cycling of matter on Earth.</li> <li>▪ Models tectonic plate movements.</li> <li>▪ Describes various geoscience processes.</li> <li>▪ Recognizes that Earth has a magnetic field.</li> <li>▪ Recognizes that air masses affect weather.</li> <li>▪ Describes various types of severe weather.</li> <li>▪ Models how the sun heats the Earth's atmosphere and surface.</li> <li>▪ Recognizes that local and global temperatures can change over time.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains various biogeochemical cycles of Earth and the flow of energy that drives these processes.</li> <li>▪ Describes the chemical and physical processes that form rocks and cycle Earth materials.</li> <li>▪ Explains how the flow of Earth's internal energy drives the cycling of matter between Earth's surface and deep in interior cause plate movements.</li> <li>▪ Explains how the distribution of Earth's resources are the result of ongoing geoscience processes.</li> <li>▪ Explains how Earth's interior composition results in a magnetic field.</li> <li>▪ Explains the measurable effects of Earth's magnetic field.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Predicts the effects of a chemical/physical change on rocks and/or Earth's materials.</li> <li>▪ Describes the factors that affect the flow of energy and cycling of matter on Earth.</li> <li>▪ Predicts the effects of a change to Earth's magnetic field.</li> <li>▪ Predicts how a change in Earth's atmosphere/surface affects weather.</li> <li>▪ Analyzes how technology can aid in forecasting severe weather.</li> <li>▪ Analyzes how technology can aide in protecting humans from severe weather/geologic events.</li> <li>▪ Predicts the effects of a change in human activities on local and global temperatures.</li> </ul>



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<b>Earth's Systems</b>			<ul style="list-style-type: none"> <li>▪ Explains the motions and complex interactions of air masses resulting in changes in weather conditions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Analyzes the impact of changes to local and global temperatures on climate and ecosystems.</li> </ul>
<b>Earth and Human Activity</b>	<ul style="list-style-type: none"> <li>▪ Identifies renewable and nonrenewable resources.</li> <li>▪ Recognizes that human can positively and negatively impact the environment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Describes why some of Earth's natural resources are nonrenewable.</li> <li>▪ Explains the ways humans impact the environment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explains how changes in human population, per capita consumption of natural resources, and other human activities affect Earth's systems.</li> <li>▪ Designs processes for monitoring and minimizing human impact on the environment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Predicts the impact of humans on the environment over time given certain criteria.</li> <li>▪ Analyzes a process for minimizing human impact on the environment.</li> </ul>



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Matter and Its Interactions	<ul style="list-style-type: none"> <li>Recognizes that objects are made of matter.</li> <li>Recognizes that matter takes up space and has mass.</li> <li>Recognizes that matter cannot be created or destroyed, but that it is conserved.</li> <li>Identifies different properties of matter.</li> <li>Recognizes a physical change.</li> <li>Recognizes a chemical change.</li> <li>Defines density.</li> </ul>	<ul style="list-style-type: none"> <li>Describes that objects are made of particles.</li> <li>Recognizes that conservation of matter applies to chemical and physical changes.</li> <li>Classifies objects by observable properties.</li> <li>Recognizes that mixing substances can change the physical or chemical properties of the substances.</li> <li>Recognizes that different substances have different densities.</li> <li>Recognizes that an object's density remains the same even if the size of the object is changed.</li> </ul>	<ul style="list-style-type: none"> <li>Proves that objects are made of particles too small to be seen.</li> <li>Recognizes when matter is conserved during a chemical reaction.</li> <li>Identifies materials based on their chemical and physical properties.</li> <li>Determines if mixing substances results in new substances.</li> <li>Explains how density affects the buoyancy of an object.</li> </ul>	<ul style="list-style-type: none"> <li>Estimates the number of particles in a sample based on the number of particles in a similar sample.</li> <li>Accounts for and describes all matter before and after a chemical reaction.</li> <li>Chooses appropriate materials for a specific task based on their chemical and physical properties.</li> <li>Predicts if mixing substances will produce new substances.</li> <li>Predicts if an object will sink or float given the density of the object and the liquid(s).</li> </ul>

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Motions and Stability: Forces and Interactions	<ul style="list-style-type: none"> <li>▪ Defines gravity.</li> <li>▪ Defines friction.</li> <li>▪ Recognizes that gravity is a force.</li> <li>▪ Recognizes that friction is a force.</li> <li>▪ Recognizes that objects are affected by gravity and friction.</li> <li>▪ Defines force and motion.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recognizes that Earth has a strong gravitational force that pulls objects downward.</li> <li>▪ Recognizes that some surfaces have more friction than others.</li> <li>▪ Recognizes that forces can change an object's motion.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Proves that the direction of the gravitational forces exerted by Earth is toward Earth's center.</li> <li>▪ Demonstrates how forces can be applied to change the speed or direction of an object.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compares the strength of gravitational forces between two objects.</li> <li>▪ Explains and predicts the impacts of forces on the motion of an object.</li> </ul>