Grade 5 Alaska Science Assessment Achievement Level Descriptors (ALDs)

The achievement level descriptors describe what a typical student scoring at each achievement level can do. A student who scores at a level would be expected to also be able to demonstrate the skills described in previous levels. A student would not necessarily demonstrate all the skills listed at a particular achievement level on a particular test in order to score at that level.

	Needs Support **Student may partially meet the standards but needs support to master the knowledge and skills of current grade-level content.**	**Approaching Proficient** **Student partially meets the standards and may have gaps in knowledge and skills but is approaching mastery of some grade-level content.**	**Proficient** **Student meets the standards and demonstrates mastery of the knowledge and skills of most grade-level content.**	**Advanced** **Student meets the standards and demonstrates mastery of the knowledge and skills on a range of complex grade-level content.**
Life Science: *Students use science and engineering practices, crosscutting concepts, and an understanding of life science disciplinary core ideas, to make sense of phenomena and solve problems.*	**A student at this level:** can identify Alaska animals.	**A student at this level:** can compare the survival strategies of two different Alaska animals.	**A student at this level:** can construct an argument that some Alaska animals form groups that help members survive.	**A student at this level:** can develop a model to explain the benefits of forming groups for Alaska animals.
	can sort or group data from fossil evidence.	can analyze data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	can analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	can construct an argument based on multiple sources of fossil evidence to support the concept that environments have changed over time.
	can match an organism to its typical environment.	can explain how an environment affects the survival of organisms.	can construct an argument with evidence that in a particular habitat, some organisms can survive well, some less well, and some cannot survive at all.	can identify patterns and make inferences related to migratory animals and the environments they travel to and from.
	can identify an environmental change that could impact a plant or an animal.	can explain a cause and effect relationship between an environmental change and an organism responding to stimuli.	can make a claim about the merit of a solution to a problem caused when an environment changes and the resulting changes in the types of plants and animals that live there.	can construct an argument that includes the interdependence of organisms in a changing environment.

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Life Science: (cont)	**A student at this level:**	**A student at this level:**	**A student at this level:**	**A student at this level:**
Students use science and engineering practices, crosscutting concepts, and an understanding of life science disciplinary core ideas, to make sense of phenomena and solve problems.	can describe primary functions of main structures in everyday plants and animals.	can analyze evidence to determine if that evidence supports a claim about the role of external structures of plants and animals in supporting survival and reproduction.	can provide feedback and ask questions about a claim and its supporting evidence as it pertains to the role of internal and external structures of plants and animals in supporting survival, growth, behavior, and reproductive success.	can develop a model showing different plant or animal structures working together as part of a system to support survival, growth, behavior, and reproductive success.
	can identify important sense receptors within a system that support basic animal behaviors.	can provide the sequence of events resulting in a given animal behavior (i.e., sensory input, sense receptor, brain processing, behavioral output).	can develop a model of an animal behavior (phenomenon) showing various components (i.e., sensory input, sense receptor, the brain, behavioral output) working together as a system.	can produce or improve a model of a phenomenon to explain how sensory systems and behavioral output function to support animal survival, growth, and reproductive success.
	can use a model to recognize that a variety of factors in the environment can be sensed by animals (e.g., sound, light, odor, temperature).	can describe the cause and effect relationship between an environmental stimuli and an animal's behavior.	can develop a model of sensory systems showing how an animal's memories can impact future behavior, survival, and reproduction.	can analyze an animal's behavior and describe reasonable, possible initial causes based on given evidence.
	can recognize examples of energy released from food was once energy from the sun captured by plants.	can explain that the energy released from food was once energy from the sun captured by plants.	can use models to describe that energy in animal feed (used for body repair, growth, motion and to maintain body warmth) was once energy from the sun.	can analyze and/or refine models to show that the energy released from food was once energy from the sun captured by plants.
	can recognize that plants acquire material for growth primarily from air and water.	can use a model to explain that plants acquire material for growth primarily from air and water.	can support an argument that plants get the materials they need for growth chiefly from air and water.	can make a claim and provide supporting evidence that plants need air and water for growth.

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Life Science: (cont) *Students use science and engineering practices, crosscutting concepts, and an understanding of life science disciplinary core ideas, to make sense of phenomena and solve problems.*	**A student at this level:** can recognize that matter moves among plants, animals, decomposers, and the environment.	**A student at this level:** can explain that matter moves among plants, animals, decomposers, and the environment.	**A student at this level:** can develop and describe a model that describes the movement of matter among plants, animals, decomposers, and the environment.	**A student at this level:** can analyze and/or compare two or more models showing the movement of matter among plants, animals, decomposers, and the environment.
Physical Science: *Students use science and engineering practices, crosscutting concepts, and an understanding of physical science disciplinary core ideas, to make sense of phenomena and solve problems.*	**A student at this level:** can recognize examples of balanced and unbalanced forces on the motion of an object. can identify characteristics of an object in motion. can identify objects that will be affected by magnets.	**A student at this level:** can interpret evidence of the effects of balanced and unbalanced forces on the motion of an object. can explain an observed change for an object in motion. can predict the results of an interaction between two magnets.	**A student at this level:** can plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. can make observations of an object's motion to provide evidence that a pattern can be used to predict future motion. can ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.	**A student at this level:** can plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. can observe and quantify measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. can develop and use a model to show cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

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Physical Science: (cont)	**A student at this level:**	**A student at this level:**	**A student at this level:**	**A student at this level:**
Students use science and engineering practices, crosscutting concepts, and an understanding of physical science disciplinary core ideas, to make sense of phenomena and solve problems.	can use provided evidence to describe the relative speed of an object (e.g., faster vs. slower).	can identify that systems with greater speed have greater energy.	can interpret provided quantitative data to support the idea that the speed of a given object is related to the energy of the object (e.g., the faster an object is moving, the more energy it possesses).	can use evidence and reasoning to construct an explanation for how a given phenomenon affects the speed and related energy of an object.
	can identify examples showing a transfer of energy.	can describe the purpose of an investigation related to energy transfer (e.g., moving objects, sound, light, heat, electric currents).	can plan and conduct an investigation that fairly tests a phenomenon involving the transfer of energy (e.g., moving objects, sound, light, heat, electric currents).	can obtain and evaluate evidence from multiple sources to design a solution to a problem involving the transfer of energy.
	can identify a device that converts energy from one form to another (e.g., a light bulb to convert electrical energy into light energy).	can identify a possible solution to a given problem involving the conversion of energy from one form to another.	can design an evidence-based improvement to local transportation systems or energy grids to reduce the environmental impact of the conversion of energy from one form to another.	can analyze and interpret evidence gathered from testing a device that converts energy from one form to another and use the results of the test to address problems in the design or improve its functioning.
	can identify a phenomenon in which waves cause an object to move.	can compare waves in phenomena in terms of amplitude and wavelength.	can develop a model of a phenomenon related to wave behavior that describes wave amplitude, wavelength, or motion of objects (e.g., wave models of loud vs soft sound).	can develop and modify a model based on wave behavior that includes wave amplitude, wavelength, or motion of objects (e.g., wave models of loud vs. soft sound).

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Physical Science: (cont)	**A student at this level:**	**A student at this level:**	**A student at this level:**	**A student at this level:**
Students use science and engineering practices, crosscutting concepts, and an understanding of physical science disciplinary core ideas, to make sense of phenomena and solve problems.	can recognize that matter is made of particles too small to be seen.	can recognize a model showing that matter is made of particles too small to be seen.	can develop and use a model to describe that matter is made of particles too small to be seen.	can analyze and/or refine models to describe that matter is made of particles too small to be seen.
	can explain that the total mass/weight of matter is conserved when substances are heated, cooled, or mixed.	can make measurements to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total mass/weight of matter is conserved.	can measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.	can make a claim and support it with numeric evidence (graphing) that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total mass/weight of matter is conserved.
	can identify materials based on their properties and provided information.	can compare materials based on their properties.	can make observations and measurements to identify materials.	can compare observations and measurements of the properties of materials to evaluate the similarities and differences in the materials.
	can recognize that mixing two or more substances may result in new substances.	can plan an investigation to determine whether the mixing of two or more substances results in new substances.	can conduct an investigation to determine whether the mixing of two or more substances results in new substances.	can plan and carry out an investigation to determine whether the mixing of two or more substances results in new substances.

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Earth and Space Science: *Students use science and engineering practices, crosscutting concepts, and an understanding of earth and space science disciplinary core ideas to make sense of phenomena and solve problems.*	**A student at this level:**	**A student at this level:**	**A student at this level:**	**A student at this level:**
	can collect data for everyday weather conditions.	can predict qualitative rainfall amounts and air temperatures expected during a particular season.	can represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	can use patterns to develop and use a model that predicts typical weather conditions during a particular season.
	can recognize examples of climates in different regions of the world.	can identify characteristics of a particular climate in a region of the world.	can combine information from multiple sources to describe climates in different regions of the world.	can make an inference about one climate and apply that inference to describe another climate.
	can recognize examples of hazardous weather.	can describe possible solutions related to a weather-related hazard.	can make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard based on supporting evidence.	can refine a design that reduces the impacts of a weather-related hazard.
	can use fossil evidence to infer a basic feature of what an environment used to be like (e.g., marine fossils indicate that in the past a landscape was covered in water).	can ask cause and effect questions about rock layers, fossils, and geological features that could lead to productive investigations about these phenomena.	can use a diagram of rock layers and fossils, as well as other geological features such as canyons, to help explain how an environment has changed over time.	can use evidence from geologic profiles to describe past environments.
	can recognize which type of maps can be used to best locate different land and water features on Earth.	can use evidence from given topographic maps to identify various Earth features (e.g., mountain ranges, ocean trenches, ocean floor structures, fault lines, volcanoes).	can use patterns on a map as evidence to explain where geologic processes are likely to occur (e.g., earthquakes, erosion, volcanoes).	can compare different maps to identify past geologic events in an area.

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Earth and Space Science: (cont)	**A student at this level:**	**A student at this level:**	**A student at this level:**	**A student at this level:**
Students use science and engineering practices, crosscutting concepts, and an understanding of earth and space science disciplinary core ideas to make sense of phenomena and solve problems.	can identify examples of natural resources that humans use for energy.	can use provided evidence to identify cause and effect relationships between the use of a natural resource and its likely impact on the environment.	can analyze and interpret patterns in evidence to describe that energy and fuels are derived from natural resources (e.g., fossil fuels, solar, wind, water) and that their uses can have various effects on the environment.	can design a solution based on evidence from multiple sources to a problem related to the use of natural resources and their effects on the environment.
	can identify possible negative impacts to humans from a natural Earth process (e.g., an earthquake, volcano, flood, landslide).	can use evidence to describe how Earth processes negatively impact on humans.	can use evidence to design a possible solution to reduce the impacts of natural Earth processes on humans.	can use evidence to generate and evaluate multiple solutions that reduce the impacts of natural Earth processes on humans based on criteria and constraints.
	can recognize ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	can use a model to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	can develop a model to describe ways the geosphere, biosphere, hydrosphere (water), cryosphere (ice), and/or atmosphere interact.	can analyze and/or refine models to compare ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
	can recognize that there is an uneven distribution of water on Earth and identify some examples.	can describe the amounts and percentages of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	can describe and construct bar graphs of the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	can compare and analyze data related to the amounts and percentages of salt water and fresh water in various reservoirs and explain reasons for the varied distribution of water on Earth.

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Earth and Space Science: (cont)	**A student at this level:**	**A student at this level:**	**A student at this level:**	**A student at this level:**
Students use science and engineering practices, crosscutting concepts, and an understanding of earth and space science disciplinary core ideas to make sense of phenomena and solve problems.	can recognize ways that individual communities use science ideas to protect Earth's resources and environment.	can compare ways individual communities use science ideas to protect Earth's resources and environment.	can obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.	can compare and/or debate ways individual communities use science ideas to protect Earth's resources and environment to determine the best solutions to specific problems.