Colorado Academic Standards for Science

August 2025 State Board of Education Revisions

On August 21, 2025, the State Board of Education approved revisions to the K-12 Colorado Academic Standards for Science to make targeted revisions to strengthen the standards around climate science. The following chart identifies the revisions that were approved by the board. Text formatted in bold underline indicates the language that has been revised.

Grade Level/Standard/ Page Number	Original Language (2020 Standards)	Revised Language (August 2025)
Grade 3 Standard 3, Earth and Space Science SC.3.3.1 p. 42	a. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1) *(Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction. Obtain and combine information to describe climates in different regions of the world.) (Boundary Statement: Graphical displays are limited to pictographs and bar graphs. Does not include climate change.)*	a. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1) *(Clarification Statement: Examples of data could include* ***Colorado's*** *average temperature, precipitation, and wind direction. Obtain and combine information to describe climates in different regions of the world.) (Boundary Statement: Graphical displays are limited to pictographs and bar graphs. Does not include climate change.)*
Grade 4 Standard 3, Earth and Space Science SC.4.3.4 p. 55	a. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. (4ESS3-1) *(Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.)*	a. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. (4ESS3-1) *(Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams* ***and wind farms****, loss of habitat due to surface mining, air pollution from burning of fossil fuels****, and harm to wildlife****.)*

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Grade 5 Standard 3, Earth and Space Science SC.5.3.3 p. 65	a. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere and/or atmosphere interact. (5-ESS2-1) *(Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.) (Boundary Statement: Limited to the interactions of two systems at a time.)*	a. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere and/or atmosphere interact. (5-ESS2-1) *(Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and* ecosystems through weather and climate***, including climate change***; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.) (Boundary Statement: Limited to the interactions of two systems at a time.)
Grade 5 Standard 3, Earth and Space Science SC.5.3.5 p. 67	Evidence Outcome a. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)	Evidence Outcome a. Obtain and combine information about ways individual communities use science ideas to protect the Earth's **ecosystems** and environment. (5-ESS3-1)
Grade 5 Standard 3, Earth and Space Science SC.5.3.5 p. 67	Elaboration on the GLE: 2. ESS3:C Human Impacts on Earth Systems: Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.	Elaboration on the GLE: 2. ESS3:C Human Impacts on Earth Systems: Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air and even outer space. But individuals and communities are doing things to help protect Earth's **ecosystems** and environments.
Middle School Standard 3, Earth and Space Science SC.MS.3.9 p. 111	a. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2) *(Clarification Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena*	a. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2) *(Clarification Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena*

	that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior processes, such as earthquakes and volcanic eruptions, surface processes, such as mass wasting and tsunamis, or severe weather events, such as hurricanes, tornadoes, and floods. Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global, such as satellite systems to monitor hurricanes or forest fires, or local, such as building basements in tornado-prone regions or reservoirs to mitigate droughts.)	*that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior processes, such as earthquakes and volcanic eruptions, surface processes, such as mass wasting and tsunamis, or severe weather events, such as hurricanes, tornadoes, and floods. Examples of data can include the locations, magnitudes, and frequencies of the natural hazards**, such as Colorado wildfire data**. Examples of technologies can be global, such as satellite systems to monitor hurricanes or forest fires, or local, such as building basements in tornado-prone regions or reservoirs to mitigate droughts.)*
Middle School Standard 3, Earth and Space Science SC.MS.3.10 p. 112	Evidence Outcome b. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (MS-ESS3-4) *(Clarification Statement: Examples of evidence include grade-appropriate databases on human populations and the rates of consumption of food and natural resources [such as freshwater, mineral, and energy]. Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes.)*	Evidence Outcome b. Construct an argument supported by evidence for how **human consumption of natural resources impacts Earth's geosphere, biosphere, atmosphere, hydrosphere, and cryosphere. Present pros and cons to the use or impact.** (MS-ESS3-4) *(Clarification Statement: Examples of evidence include grade-appropriate databases on human populations and the rates of consumption of food and natural resources [such as freshwater, mineral, and energy]. Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes.)*

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Middle School Standard 3, Earth and Space Science SC.MS.3.10 p. 112	Elaboration on the GLE 2. ESS3.C Human Impacts on Earth Systems: Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.	Elaboration on the GLE 2. ESS3.C Human Impacts on Earth Systems: Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on **Earth's geosphere, biosphere, atmosphere, hydrosphere, and cryosphere** unless the activities and technologies involved are engineered otherwise.
Middle School Standard 3, Earth and Space Science SC.MS.3.11 p. 114	a. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. (MS-ESS3-5) *(Clarification Statement: Examples of factors include human activities [such as fossil fuel combustion, cement production, and agricultural activity] and natural processes [such as changes in incoming solar radiation or volcanic activity]. Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.)*	a. Ask questions **and learn about the effects of all forms of energy use. Ask questions and gather evidence on the causes of changing global temperatures, including human factors and natural cycles**. (MS-ESS3-5) *(Clarification Statement: Examples of factors include human activities [such as fossil fuel combustion, cement production, and agricultural activity, **manufacturing and mining of materials used in renewable energy, and waste management**] and natural processes [such as changes in incoming solar radiation or volcanic activity]. Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.)*

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High School Standard 3, Earth and Space Science SC.HS.3.11 p. 170	b. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. (HS-ESS3-4) *(Clarification Statement: Examples of data on the impacts of human activities could include the quantities and types of pollutants released, changes to biomass and species diversity, or areal changes in land surface use [such as for urban development, agriculture, and livestock, or surface mining]. Examples for limiting future impacts could range from local efforts [such as reducing, reusing, and recycling resources] to large-scale geoengineering design solutions [such as altering global temperatures by making large changes to the atmosphere or ocean].)*	b. Evaluate or refine a technological solution that reduces **energy production and defend the solution or propose an alternative with evidence that considers the impact on natural systems, the economic and societal cost, global human rights issues, waste management, and long-term effects**. (HS-ESS3-4) *(Clarification Statement: Examples of data **could include measurements of greenhouse gas emissions from fossil fuel combustion, industrial processes, manufacturing and mining of materials used in renewable energy, and other pollution sources; changes to atmospheric composition; impacts on biodiversity; and changes in land use patterns that affect carbon sinks. Examples of technological solutions could range from local efforts [such as adopting renewable energy or sustainable public transit] to large scale engineering approaches [such as reducing industrial emissions or utilizing geothermal energy or carbon capture and storage].***
High School Standard 3, Earth and Space Science SC.HS.3.11 p. 171	b. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. (HS-ESS3-6) *(Clarification Statement: Examples of Earth systems to be considered are the hydrosphere, atmosphere, cryosphere, geosphere, and/or biosphere. An example of the far-reaching impacts from a human activity is how an increase in atmospheric carbon dioxide results in an increase in photosynthetic biomass on land and an increase in ocean acidification, with resulting*	b. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to **anthropogenic climate change**. (HS-ESS3-6) *(Clarification Statement: Examples of Earth systems to be considered are the hydrosphere, atmosphere, cryosphere, geosphere, and/or biosphere. An example of the far-reaching impacts from a human activity is how an increase in atmospheric carbon dioxide **from the burning of fossil fuels** results in an increase in photosynthetic biomass on land and an increase in ocean*

	impacts on sea organism health and marine populations.) (Boundary Statement: Does not include running computational representations but is limited to using the published results of scientific computational models.)	*acidification, with resulting impacts on sea organism health and marine populations.) (Boundary Statement: Does not include running computational representations but is limited to using the published results of scientific computational models.)*