We sincerely appreciate your feedback and encourage you to use the form below to provide us with your valuable insights and suggestions. These are living documents. PROFICIENCY SCALE FEEDBACK

Earth and Space Proficiency Scales
Unit 1-Matter and the Universe #1

Priority Standard/Learning Target

I can use evidence (red shift, blue shift, and cosmic microwave radiation) to support the Big Bang Theory.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…
- ☐ Explain how the motion of distant galaxies is evidence of Big Bang Theory
- ☐ Cite scientific sources properly
- ☐ Evaluate the validity of a source for evidence of the Big Bang Theory

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…
- ☐ Explain how the following are evidence of Big Bang Theory: Redshift/blueshift, cosmic microwave radiation and distribution of matter in the universe

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…
- ☐ Identify the evidences of the Big Bang Theory
- ☐ Define terms associated with the Big Bang theory
- ☐ Differentiate between redshift and blueshift
- ☐ Describe what creates cosmic radiation
- ☐ Identify where matter is found in space

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Matter and the Universe

SEEd STANDARDS

Standard ESS.1.2 Construct an explanation of the Big Bang theory based on astronomical evidence of electromagnetic radiation, motion of distant galaxies, and composition of matter in the universe. Emphasize redshift of electromagnetic radiation, cosmic microwave background radiation, and the observed composition and distribution of matter in the universe. (PS4.B, ESS1.A)

Standard ESS.1.1 Develop a model based on evidence to illustrate the life span of the Sun and the role of nuclear fusion releasing energy in the Sun's core. Emphasize energy transfer mechanisms that allow energy from nuclear fusion to reach Earth. Examples of evidence for the model could include observations of the masses and lifetimes of other stars, or non-cyclic variations over centuries. (PS1.C, PS3.D, ESS1.A, ESS1.B)

Standard ESS.1.3 Develop a model to illustrate the changes in matter occurring in a star's life cycle. Emphasize that the way different elements are created varies as a function of the mass of a star and the stage of its lifetime. (PS3.D, ESS1.A)

Standard ESS.1.4 Design a solution to a space exploration challenge by *breaking it down into smaller, more manageable problems that can be solved through the* structure and function of *a device. Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize a solution.* Examples of problems could include, cosmic radiation exposure, transportation on other planets or moons, or supplying energy to space travelers. (ESS1.A, ESS1.B, ETS1.A, ETS1.B, ETS1.C)

Earth and Space Proficiency Scales
Unit 1-Matter and the Universe #2

Priority Standard/Learning Target

I can make and use a model to explain how stars are the source of matter in the universe.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Use models to differentiate between the life cycles of different types of stars
- ☐ Describe the accuracy and/or limitations of a model

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Explain how fusion creates new elements
- ☐ Use a model to describe the process of nuclear fusion
- ☐ Use a model to describe the lifecycle of a star
- ☐ Explain how the age of the star is related to its mass

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Describe the differences between elements, specifically the amount of protons, neutrons and electrons
- ☐ Make a model to illustrate nuclear fusion in a star including the fuel and the end products (elements, energy, …)
- ☐ Make a model of the life cycle of a star
- ☐ Identify the source of matter in the universe
- ☐ Differentiate mass and matter

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Matter and the Universe

SEEd STANDARDS

Standard ESS.1.2 Construct an explanation of the Big Bang theory based on astronomical evidence of electromagnetic radiation, motion of distant galaxies, and composition of matter in the universe. Emphasize redshift of electromagnetic radiation, cosmic microwave background radiation, and the observed composition and distribution of matter in the universe. (PS4.B, ESS1.A)

Standard ESS.1.1 Develop a model based on evidence to illustrate the life span of the Sun and the role of nuclear fusion releasing energy in the Sun's core. Emphasize energy transfer mechanisms that allow energy from nuclear fusion to reach Earth. Examples of evidence for the model could include observations of the masses and lifetimes of other stars, or non-cyclic variations over centuries. (PS1.C, PS3.D, ESS1.A, ESS1.B)

Standard ESS.1.3 Develop a model to illustrate the changes in matter occurring in a star's life cycle. Emphasize that the way different elements are created varies as a function of the mass of a star and the stage of its lifetime. (PS3.D, ESS1.A)

Standard ESS.1.4 Design a solution to a space exploration challenge by *breaking it down into smaller, more manageable problems that can be solved through the* structure and function of *a device. Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize a solution.* Examples of problems could include, cosmic radiation exposure, transportation on other planets or moons, or supplying energy to space travelers. (ESS1.A, ESS1.B, ETS1.A, ETS1.B, ETS1.C)

Earth and Space Proficiency Scales
Unit 2-CHANGES to EARTH #1

Priority Standard/Learning Target

I can develop and use a model to explain how Earth's dynamic processes cause changes to the Earth's structure.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Use current scientific research and data on geological changes to make predictions for future changes to the Earth's surface
- ☐ Use examples of specific geological events to model their impact on Earth's structure.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Explain how meteors impact the structure of Earth
- ☐ Explain how plate tectonics impact changes to the Earth (sea floor spreading, formation of mountains, ocean floor features, island formation,...)
- ☐ Use a model to explain how mantle convection currents impact the movement of tectonic plates and lead to volcanic activity and earthquakes
- ☐ Explain how the processes of weathering, erosion, and deposition continuously reshape Earth's surface
- ☐ Explain how certain physical features on Earth illustrate plate boundaries
- ☐ Explain how the Earth's magnetic field is created
- ☐ Describe what can impact the strength and orientation of Earth's magnetic field

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Describe the processes of weathering, erosion, and deposition.
- ☐ Describe the structure of the Earth (magnetic field, crust, mantle, core…)
- ☐ Describe what causes mantle convection (radioactive decay, density,...)
- ☐ Illustrates basic processes such as plate movements and volcanic activity.
- ☐ Identify and describe physical features associated with plate tectonics (mountains, fault lines,…)

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Earth and Space Proficiency Scales
Unit 2-CHANGES to EARTH #2

Priority Standard/Learning Target

I can use data to describe the history and age of the Earth.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Provide detailed explanations of advanced techniques in radiometric dating (e.g., isochron dating).
- ☐ Evaluates the reliability and accuracy of different dating techniques in various geological contexts.
- ☐ Evaluate current scientific research and data on Earth's age and compare it with past estimates.
- ☐ Calculates the age of a sample using basic radiometric dating equations.
- ☐ Provide examples of how both relative and absolute dating methods have been used to date significant geological events.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Support a claim with evidence about the age of Earth
- ☐ Use data to explain how radiometric (absolute) dating is used to determine the age of rocks
- ☐ Use data to explain how relative dating is used to determine the age of rocks
- ☐ Use data to explain how impact crater evidence has been affected by plate tectonics and other geological processes
- ☐ Use data to explain how the location of rocks and geological can be used to determine the age of the Earth.
- ☐ Explain how the composition of solar system objects (planets, meteorites, lunar rocks…..) are used to determine the age of Earth

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Make a claim about the age of the Earth
- ☐ Define terms associated with radiometric dating
- ☐ Differentiate between relative and absolute dating
- ☐ Identify the composition of a meteorite
- ☐ Describe an isotope
- ☐ Describes the basic concept of radiometric dating and the use of isotopes.
- ☐ Create a simple timeline of Earth's age using relative dating methods.
- ☐ Recognizes patterns in the layers of rock and fossil records to support the age of the Earth

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Changes to the Earth

SEEd STANDARDS

Standard ESS.2.1 Analyze and interpret data to construct an explanation for the changes in Earth's formation and 4.6 billion year history. Examples of data could include the absolute ages of ancient Earth materials, the size and composition of solar system objects like meteorites, or the impact cratering record of planetary surfaces. (ESS1.C)

Standard ESS.2.2 Develop and use a model based on evidence of Earth's interior and describe the cycling of matter by thermal convection. Emphasize the density of Earth's layers and mantle convection driven by radioactive decay and heat from Earth's early formation. Examples of evidence could include maps of Earth's three-dimensional structure obtained from seismic waves or records of the rate of change of Earth's magnetic field. (PS1.C, ESS2.A, ESS2.B)

Standard ESS.2.3 Construct an explanation for how plate tectonics results in patterns on Earth's surface. Emphasize past and current plate motions. Examples could include continental and ocean floor features such as mountain ranges and mid-ocean ridges, magnetic polarity preserved in seafloor rocks, or regional hot spots. (ESS2.B)

Standard ESS.2.4 Develop and use a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales. Emphasize how the appearance of land and seafloor features are a result of both constructive forces and destructive mechanisms. Examples of constructive forces could include tectonic uplift or mountain building. Examples of destructive mechanisms could include weathering or mass wasting. (ESS2.B)

Earth and Space Proficiency Scales
Unit 3-EVOLUTION of SYSTEMS

Priority Standard/Learning Target

I can develop and use a model of the carbon cycle to explain the co-evolution of Earth's systems and living things.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Evaluates the effectiveness of various strategies for managing carbon in Earth's systems (e.g., reforestation, carbon capture and storage).
- ☐ Critically evaluates and synthesizes current research and theories on the co-evolution of Earth's systems and life.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Develops and uses a model to show how different Earth systems (atmosphere, hydrosphere, biosphere, lithosphere) interact within the carbon cycle.
- ☐ Provides examples of how changes in the carbon cycle can affect Earth's systems (acidification, greenhouse..)
- ☐ Constructs arguments supported by evidence to explain how specific biological adaptations influenced geological changes or vice versa.

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Recognizes the basic components of the carbon cycle (e.g., carbon dioxide, fossil fuels, plants).
- ☐ Explains the role of key processes in the carbon cycle (e.g., decomposition, combustion)
- ☐ Describes in simple terms how carbon is exchanged between the atmosphere and living things (e.g.,photosynthesis and respiration).
- ☐ Identifies the relationship between the emergence of photosynthetic organism and the effect oxygen had on the atmosphere and oceans

- ☐ Describe the effect of the presence of free oxygen on evolution and processes in other Earth systems

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Evolution of Systems and Cycles

SEEd STANDARDS

Standard ESS.2.5 Engage in argument from evidence for how the simultaneous co- evolution of Earth's systems and life on Earth led to periods of stability and change over geologic time. Examples could include how microbial life on land increased the formation of soil, which in turn allowed for the evolution of land plants or how the evolution of corals created reefs that altered patterns of coastal erosion and deposition providing habitats for the evolution of new life forms. (LS4.D, ESS2.D, ESS2.E)

Standard ESS.3.5 Develop and use a quantitative **model** to describe the cycling of carbon among Earth's systems. Emphasize each of Earth's systems (hydrosphere, atmosphere, geosphere, and biosphere) and how the movement of carbon from one system to another can result in changes to the system(s). Examples could include more carbon absorbed in the oceans leading to ocean acidification or more carbon present in the atmosphere leading to a stronger greenhouse effect. (LS2.B, ESS2.D, ESS3.D)

Earth and Space Proficiency Scales
Unit 4-TRANSFER OF ENERGY #1

Priority Standard/Learning Target

I can investigate the properties of water to explain its effects on Earth materials and surface processes.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Discusses current research on water's role in Earth's systems and its potential impact on future environmental conditions.
- ☐ Evaluates the implications of changes in water availability and quality on Earth's systems.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Uses evidence to explain how water regulates temperature through its high specific heat capacity.
- ☐ Uses evidence to explain the density of water in different states of matter and solutions
- ☐ Investigates and identifies how the mechanical effects of water transport and deposit Earth's materials
- ☐ Analyzes the impact of water's solvent properties on environmental and biological systems.
- ☐ Illustrates with examples how water's physical properties contribute to weather phenomena.

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Uses a model to show and describe the molecular structure of water
- ☐ Identifies the basic chemical properties of water (e.g., hydrogen bonding, water is a polar molecule, rusting, solubility).
- ☐ Identifies physical properties such as cohesion, adhesion, capillary action, surface tension, states of matter.

- ☐ Describes how water expands when it freezes and how this affects natural environments (e.g., ice forming on lakes, break down rocks).
- ☐ Describes in simple terms how water interacts with other substances (e.g., water dissolves salt)

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Earth and Space Proficiency Scales
Unit 4-TRANSFER OF ENERGY #2

Priority Standard/Learning Target

I can analyze the transfer of electromagnetic energy from the sun to Earth and its impact on our planet.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Provides detailed explanations of how specific types of electromagnetic energy (e.g., UV, infrared) interact with Earth's systems.
- ☐ Provides detailed explanations of advanced concepts such as the role of water in the global heat budget.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Explain the the processes of absorption, reflection, and scattering of solar energy.
- ☐ Analyzes how different types of electromagnetic energy from the sun impact Earth's surface, atmosphere, and biosphere.
- ☐ Explains how how greenhouse gasses (e.g., carbon dioxide, water vapor) absorb and re-emit infrared radiation which contributes to atmospheric warming.
- ☐ Discusses how the uneven heating of Earth's surface leads to temperature gradients and pressure differences.
- ☐ Model how the shape of Earth's orbit around the sun, together with changes in the tilt of the planet's axis of rotation, alter the intensity and distribution of sunlight falling on the earth.

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Identify different types of solar electromagnetic energy
- ☐ Describes how this energy travels through space.
- ☐ Identify components of the greenhouse effect.
- ☐ Explain how atmosphere currents transport matter and transfer energy (convention and wind patterns)
- ☐ Illustrates how the sun's heat creates different temperature zones

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Earth and Space Proficiency Scales
Unit 4–TRANSFER OF ENERGY #3

Priority Standard/Learning Target

I can describe how the movement of energy and water affects weather and climate.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Applies mathematical models or simulations to demonstrate the dynamics of atmospheric circulation and energy transfer.
- ☐ Relates atmospheric circulation patterns to global climate zones and their influence on weather patterns and climate variability.
- ☐ Provides detailed explanations of advanced concepts such as jet streams and their impact on weather.
- ☐ Evaluates current scientific research and data on the sun's energy and its effects on climate change

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Explain how water absorbs, stores, and releases energy.
- ☐ Explains the role of oceans in moderating climate and influencing weather patterns.
- ☐ Provides examples of how water interacts with energy to create weather systems (e.g., hurricanes, monsoons).
- ☐ Explains the relationship between Earth's uneven heating, the Coriolis effect, and wind patterns.
- ☐ Analyzes and interprets weather data, linking factors such as solar energy, latitude, elevation, and proximity to geographical features with specific weather outcomes.

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Explains the processes of evaporation, condensation, and precipitation
- ☐ Uses a model to show how the water cycle transfers energy through the hydrosphere, atmosphere, geosphere, and biosphere.
- ☐ Describes how water vapor contributes to the greenhouse effect.
- ☐ Recognizes that water interacts with energy (e.g., absorbs heat from the sun).
- ☐ Understands that water is involved in weather and climate (e.g., rain, snow).
- ☐ Define weather, climate, latitude, elevation, air pressure gradients.

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Transfer of Energy through Earth Systems

SEEd STANDARDS

Standard ESS.1.1 Develop a model based on evidence to illustrate the life span of the Sun and the role of nuclear fusion releasing energy in the

Sun's core. Emphasize energy transfer mechanisms that allow energy from nuclear fusion to reach Earth. Examples of evidence for the model could include observations of the masses and lifetimes of other stars, or non-cyclic variations over centuries. (PS1.C, PS3.D, ESS1.A, ESS1.B)

Standard ESS.3.1 Plan and carry out an investigation of the properties of water and its effects on Earth materials and surface processes. Examples of properties could include water's capacity to expand upon freezing, dissolve and transport material, or absorb, store, and release energy. (ESS2.C)

Standard ESS.3.3 Construct an explanation for how energy from the Sun drives atmospheric processes and how atmospheric currents transport matter and transfer energy. Emphasize how energy from the Sun is reflected, absorbed, or scattered; how the greenhouse effect contributes to atmospheric energy; and how uneven heating of Earth's atmosphere combined with the Coriolis effect creates an atmospheric circulation system. (PS3.A, ESS1.B, ESS2.A, ESS2.D)

Standard ESS.3.2 Construct an explanation of how heat (energy) and water (matter) move throughout the oceans causing patterns in weather and climate. Emphasize the mechanisms for surface and deep ocean movement. Examples of mechanisms for surface movement could include wind, Sun's energy, or the Coriolis effect. Examples of mechanisms for deep ocean movement could include water density differences due to temperature or salinity. (ESS2.C, ESS2.D)

ESS.3.4 Analyze and interpret patterns in data about the factors influencing weather of a given location. Emphasize the amount of solar energy received due to latitude, elevation, the proximity to mountains and/ or large bodies of water, air mass formation and movement, and air pressure gradients. (ESS2.D)

Earth and Space Proficiency Scales
Unit 5-CLIMATE STABILITY and CHANGE #1

Priority Standard/Learning Target

I can analyze global climate records to understand historical, current, and future changes to Earth's climate.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Provides detailed explanations of advanced climate reconstruction techniques (e.g., isotope analysis, paleoclimatology).
- ☐ Conducts detailed analyses of global climate records using advanced statistical methods.
- ☐ Evaluates the reliability and limitations of different types of climate data.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Identify and describe different data set of various climate records (e.g., ice cores, ocean sediments) are used to reconstruct past climates.
- ☐ Use data to explain the significance of different climate indicators (e.g., CO2 levels, methane concentrations).
- ☐ Analyze data to identify significant climate trends and anomalies.
- ☐ Provides examples of historical climate events and their impacts (e.g., Ice Ages, Medieval Warm Period).
- ☐ Understands the complex interactions between different climate factors and their impacts on global climate.
- ☐ Evaluates how historical climate records help predict future climate changes.

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Identifies basic types of climate records (e.g., temperature, precipitation).
- ☐ Describes the basic methods used to collect climate data.

- ☐ Identifies simple trends in climate data (e.g., increasing temperatures).
- ☐ Identifies patterns in historical climate data.
- ☐ Illustrates trends in climate records over time (e.g., graphs showing temperature changes).

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Earth and Space Proficiency Scales
Unit 5-CLIMATE STABILITY and CHANGE #2

Priority Standard/Learning Target

I can explain how climate feedback loops operate and their effects on Earth's climate system.

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

- ☐ Provides detailed explanations of advanced concepts related to feedback loops (e.g., permafrost melt releasing methane).
- ☐ Discusses current research on feedback loops and their implications for climate modeling and predictions.
- ☐ Conducts detailed analyses of feedback loops using advanced statistical and computational methods.

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

- ☐ Describes in detail how various feedback loops (e.g., water vapor feedback, carbon cycle feedback) impact the climate.
- ☐ Explains the significance of feedback loops in the context of climate change.
- ☐ Analyzes complex climate data to identify the presence and impact of feedback loops.
- ☐ Provides detailed examples of how feedback loops amplify or dampen climate changes.
- ☐ Understands the complex interactions between different feedback loops and their combined effects on the climate system.
- ☐ Evaluates how feedback loops contribute to current and future climate changes.

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

- ☐ Explains the concept of positive and negative feedback loops.
- ☐ Illustrates how a feedback loop operates with a simple diagram.
- ☐ Identifies examples of climate feedback loops in nature.
- ☐ Recognizes patterns in climate data related to feedback loops.

1- Not Yet Proficient

- ☐ With support, I have partial success at level 2 or partial success at level 3.

Climate Stability and Change

SEEd STANDARDS

Standard ESS.3.6 Analyze and interpret data from global climate records to illustrate changes to Earth's systems throughout geologic time and make predictions about future variations using modern trends. Examples of data could include average sea surface temperature, average air temperature, composition of gasses in ice cores, or tree rings. (ESS2.D, ESS3.D)

Standard ESS.3.7 Engage in argument from evidence to support the claim that one change to Earth's surface can create climate feedback loops that cause changes to other systems. Examples of climate feedbacks could include ice-albedo or warming oceans. (PS3.B, ESS2.A)

Standard ESS.2.6 Evaluate design solutions that reduce the effects of natural disasters on humans. *Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.* Examples of natural disasters could include earthquakes, tsunamis, hurricanes, drought, landslides, floods, or wildfires. (ESS3.B, ETS1.A, ETS1.B, ETS1.C)

Earth and Space Proficiency Scales
Unit 6-SUSTAINABILITY

Priority Standard/Learning Target

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

☐

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

☐

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

☐

1- Not Yet Proficient

☐ With support, I have partial success at level 2 or partial success at level 3.

Earth and Space Proficiency Scales
Unit 6-Sustainability

Priority Standard/Learning Target

4- Above Proficient (DOK 3-4, advanced applications, deeper learning, deeper thinking)

I can perform proficient tasks below and…

☐

3- Proficient: I can do all of the following (DOK 2-3, Skills and content required to meet standard)

I can perform approaching proficient tasks below and…

☐

2- Approaching Proficient: I can do all of the following (DOK 1-2, prerequisite content skills needed to achieve proficient)

I can perform basic skills such as…

☐

1- Not Yet Proficient

☐ With support, I have partial success at level 2 or partial success at level 3.

Standard ESS.4.1 Construct an explanation for how the availability of natural resources, the occurrence of natural hazards, and changes in climate affect human activity. Examples of natural resources could include access to fresh water, clean air, or regions of fertile soils. Examples of factors that affect human activity could include that rising sea levels cause humans to move farther from the coast or that humans build railroads to transport mineral resources from one location to another. (ESS3.A, ESS3.B)

Standard ESS.4.2 Use computational thinking to explain the relationships between the sustainability of natural resources and biodiversity within Earth systems. Emphasize the importance of responsible stewardship of Earth's resources. Examples of factors related to sustainability could include costs of resource extraction, per-capita consumption, waste management, agricultural efficiency, or levels of conservation. Examples of natural resources could include minerals, water, or energy resources. (ESS3.A)

Standard ESS.4.4 Evaluate **design solutions** for a major global or local environmental problem based on one of Earth's systems. *Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.* Examples of major global or local problems could include water pollution or availability, air pollution, deforestation, or energy production. (ESS3.C, ETS1.A, ETS1.B, ETS1.C)

Standard ESS.4.3
Evaluate **design solutions** for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios on large and small scales. *Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.* Emphasize the conservation, recycling, and reuse of resources where possible and minimizing impact where it is not possible. Examples of large-scale solutions could include developing best practices for agricultural soil use or mining and production of conventional, unconventional, or renewable energy resources. Examples of small- scale solutions could include mulching lawn clippings or adding biomass to gardens. (ESS3.A, ETS1.A, ETS1.B, ETS1.C)

Earth and Space Priority Standards/Skills

Unit 1	Matter and the Universe	I can use evidence (red shift, blue shift, and cosmic microwave radiation) to support the Big Bang Theory.
		I can make and use a model to explain how stars are the source of matter in the universe.
Unit 2	Changes to Earth	I can develop and use a model to explain how Earth's dynamic processes cause changes to the Earth's structure.
		I can use data to describe the history and age of the Earth.
Unit 3	Evolution of Systems	I can develop and use a model of the carbon cycle to explain the co-evolution of Earth's systems and living things.
Unit 4	Transfer of Energy	I can investigate the properties of water to explain its effects on Earth materials and surface processes.
		I can analyze the transfer of electromagnetic energy from the sun to Earth and its impact on our planet.
		I can describe how the movement of energy and water affects weather and climate.
Unit 5	Climate Stability and Change	I can analyze global climate records to understand historical, current, and future changes to Earth's climate.
		I can explain how climate feedback loops operate and their effects on Earth's climate system.
Unit 6	Sustainability	Under Construction
		Under Construction

We sincerely appreciate your feedback and encourage you to use the form below to provide us with your valuable insights and suggestions.

Proficiency Scale Feedback Form