|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Science – Grade 11 Earth and Space Sciences** | | | | |
| **SC.HS.11 Space Systems** | | **Access Points** | | |
| **Standard / Indicator** | **Extension** |
| SC.HS.11.1. Gather, analyze, and communicate evidence to defend that the universe changes over time. |  | **A** | **B** | **C** |
| SC.HS.11.1.A **Develop a model** based on evidence to illustrate the stages of stars, like the sun**,** and the role of nuclear fusion in the sun’s core to release energy that eventually reaches Earth in the form of radiation. Assessment does not include details of the atomic and sub-atomic processes involved with the sun’s nuclear fusion. | Construct an explanation to describe that the sun is a star and energy from the sun reaches Earth. | Given a model, explain that energy from the sun (a star) reaches Earth in the form of heat and light. | Recognize that light and heat are forms of energy from the sun (a star) that reach Earth. | Recognize that the sun is a star and its light or heat reaches Earth. |
| SC.HS.11.1.D **Use mathematical or computational representations** to predict the motion of orbiting objects in the solar system. Mathematical representations for the gravitational attraction of bodies and Kepler’s Laws of orbital motions should not deal with more than two bodies, nor involve calculus. | Use a model to predict the motion of orbiting objects in the solar system. | Recognize that objects in the solar system (e.g., planets, moons, satellites) orbit in predictable patterns. | Recognize that moons orbit planets in patterns while planets orbit the sun in patterns. | Recognize that planets orbit the sun. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Science – Grade 11 Earth and Space Sciences** | | | | |
| **SC.HS.12 Weather and Climate** | | **Access Points** | | |
| **Standard / Indicator** | **Extension** |
| SC.HS.12.2 Gather, analyze, and communicate evidence to support that Earth's climate and weather are influenced by energy flow through Earth systems. |  | **A** | **B** | **C** |
| SC.HS.12.2.B **Use a model** to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate. Assessment of the results of changes in climate is limited to changes in surface temperatures, precipitation patterns, glacial ice volumes, sea levels, and biosphere distribution. | Use a model to describe differences in energy and climate on Earth. | Explain that while Earth orbits around the sun, Earth’s tilt/position impacts energy differences between the poles and the equator, producing different climates. | Identify that Earth’s position impacts energy differences between the poles and the equator, producing different climates. | Recognize that the sun’s energy is different at the poles and at the equator, producing different climates. |
| SC.HS.12.2.C **Analyze geoscience data** and the results from global climate models to make an evidence-based forecast of the current rate and scale of global or regional climate changes. | Interpret simple graphs or illustrations to identify trends in global climate over time. | Given graphs or illustrations, identify the patterns of global temperatures and pollution to explain trends. | Given graphs or illustrations, identify the patterns of global temperatures and pollution.  . | Given a graph or an illustration, recognize the pattern of global temperature. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Science – Grade 11 Earth and Space Sciences** | | | | |
| **SC.HS.13 Earth's Systems** | | **Access Points** | | |
| **Standard / Indicator** | **Extension** |
| SC.HS.13.3 Gather, analyze, and communicate evidence to defend the position that Earth's systems are interconnected and impact one another. |  | **A** | **B** | **C** |
| SC.HS.13.3.A **Analyze geoscience data** to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. | Explain that atmospheric changes cause changes to Earth’s surface. (temperature, water, and wind) | Explain that atmospheric changes cause changes to Earth’s surface. (temperature, water and wind) | Recognize that water and wind change the surface of Earth over time. | Recognize that water changes the surface of Earth. |
| SC.HS.13.3.B **Develop a model** based on evidence of Earth's interior to describe the cycling of matter. | Use a model to describe Earth’s three layers. | Identify that Earth has layers with different characteristics. | Identify that Earth has different layers. | Recognize that Earth has different layers. |
| SC.HS.13.3.C **Construct an argument based on evidence** to explain the multiple processes that cause Earth’s plates to move. | Describe how the motion of Earth’s tectonic plates causes different features or events. | Describe evidence of earthquakes and volcanoes. | Identify that Earth’s tectonic plates move, causing earthquakes and volcanoes. | Recognize that Earth’s tectonic plates move. |
| SC.HS.13.3.D **Plan and conduct an investigation** of the properties of water and their effects on Earth materials, surface processes, and groundwater systems. | Make observations to understand that water’s properties impact Earth’s materials. | Identify that water can change Earth’s materials by freezing or transporting materials. | Recognize that water changes Earth’s surface by freezing or transporting materials. | Recognize that water freezes, changing Earth’s surface. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Science – Grade 11 Earth and Space Sciences** | | | | |
| **SC.HS.15 Sustainability** | | **Access Points** | | |
| **Standard / Indicator** | **Extension** |
| SC.HS.15.5 **Gather, analyze, and communicate evidence** to describe the interactions between society, environment, and economy. |  | **A** | **B** | **C** |
| SC.HS.15.5.A **Construct an explanation based on evidence** for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. | Construct an explanation of how the availability of natural resources influences human activity.  Construct an explanation of how natural hazards influence human activity. | Use evidence to construct an explanation of how the availability of renewable and nonrenewable resources impacts human society.  Use evidence to construct an explanation of how natural hazards impact humans. | Identify renewable and nonrenewable resources that impact one’s life.  Identify ways natural hazards impact humans. | Recognize that natural resources impact one’s life.  Recognize natural hazards. |
| SC.HS.15.5.D **Evaluate or refine a technological solution** that increases positive impacts of human activities on natural systems. | Construct an explanation to describe how humans positively and negatively impact Earth. | Explain ways humans positively and negatively impact Earth. | Identify ways humans impact Earth. | Recognize that humans impact Earth. |
| SC.HS.15.5.E **Evaluate a solution to a complex real-world problem** based on prioritized criteria and tradeoffs that account for a range ofconstraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. | Explain how humans can reduce their impact on the environment. | Explain how humans can reduce their impact on the environment. | Identify a solution to reduce human impact on the environment. | Recognize the solution to an environmental problem. |