| Reporting Category | Colorado Acadamic Standards<br>Summative Assessment Framework -FINAL<br>Science High School | % of Score Points of Total Test | Points | | |
|---|---|---|---|---|---|
| | | | For Concept/ Skill | For Concept/ Skill and SI/NS* | Total |
| 1 | **Physical Science** | **33%** | 20 | 6 | 26 |
| | **1. Newton's laws of motion and gravitation describe the relationships among forces acting on and between objects, their masses, and changes in their motion - but have limitations**<br>a. Gather, analyze and interpret data and create graphs regarding position, velocity and acceleration of moving objects (DOK 1-3)<br>b. Develop, communicate and justify an evidence-based analysis of the forces acting on an object and the resultant acceleration produced by a net force (DOK 1-3)<br>c. Develop, communicate and justify an evidence-based scientific prediction regarding the effects of the action-reaction force pairs on the motion of two interacting objects (DOK 1-3)<br>d. Examine the effect of changing masses and distance when applying Newton's law of universal gravitation to a system of two bodies (DOK 1-2)<br>e. Identify the limitations of Newton's laws in extreme situations (DOK 1) | | | | |
| | **2. Matter has definite structure that determines characteristic physical and chemical properties**<br>a. Develop, communicate, and justify an evidence-based scientific explanation supporting the current model of an atom (DOK 1-3)<br>b. Gather, analyze and interpret data on chemical and physical properties of elements such as density, melting point, boiling point, and conductivity (DOK 1-2)<br>c. Use characteristic physical and chemical properties to develop predictions and supporting claims about elements' positions on the periodic table (DOK 1-2)<br>d. Develop a model that differentiates atoms and molecules, elements and compounds, and pure substances and mixtures (DOK 2-3) | | | | |
| | **3. Matter can change form through chemical or nuclear reactions abiding by the laws of conservation of mass and energy**<br>a. Recognize, analyze, interpret, and balance chemical equations (synthesis, decomposition, combustion, and replacement) or nuclear equations (fusion and fission) (DOK 1-2)<br>b. Predict reactants and products for different types of chemical and nuclear reactions (DOK 1-2)<br>c. Predict and calculate the amount of products produced in a chemical reaction based on the amount of reactants (DOK 1-2)<br>d. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate the conservation of mass and energy (DOK 1-2) | | | | |

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| | | | For Concept/ Skill | For Concept/ Skill and SI/NS* | Total |
| | **4. Atoms bond in different ways to form molecules and compounds that have definite properties**<br>a. Develop, communicate, and justify an evidence-based scientific explanation supporting the current models of chemical bonding (DOK 1-3)<br>b. Gather, analyze, and interpret data on chemical and physical properties of different compounds such as density, melting point, boiling point, pH, and conductivity (DOK 1-2)<br>c. Use characteristic physical and chemical properties to develop predictions and supporting claims about compounds' classification as ionic, polar or covalent (DOK 1-2)<br>d. Describe the role electrons play in atomic bonding (DOK 1)<br>e. Predict the type of bonding that will occur among elements based on their position in the periodic table (DOK 1-2) | | | | |
| | **5. Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined**<br>a. Develop, communicate, and justify an evidence-based scientific explanation regarding the potential and kinetic nature of mechanical energy (DOK 1-3)<br>b. Use appropriate measurements, equations and graphs to gather, analyze, and interpret data on the quantity of energy in a system or an object (DOK 1-3)<br>c. Use direct and indirect evidence to develop predictions of the types of energy associated with objects (DOK 2-3)<br>d. Identify different energy forms, and calculate their amounts by measuring their defining characteristics (DOK 1-2) | | | | |
| | **6. When energy changes form, it is neither created not destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases**<br>a. Use direct and indirect evidence to develop and support claims about the conservation of energy in a variety of systems, including transformations to heat (DOK 1-3)<br>b. Evaluate the energy conversion efficiency of a variety of energy transformations (DOK 1-2)<br>c. Describe energy transformations both quantitatively and qualitatively (DOK 1-2)<br>d. Differentiate among the characteristics of mechanical and electromagnetic waves that determine their energy (DOK 2)<br>e. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate energy conservation and loss (DOK 1-2) | | | | |

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| 2 | **Life Science** | **34%** | 20 | 7 | 27 |
| | **1. Matter tends to be cycled within an ecosystem, while energy is transformed and eventually exits an ecosystem**<br>a. Analyze how energy flows through trophic levels (DOK 1-2)<br>b. Evaluate the potential ecological impacts of a plant-based or meat-based diet (DOK 2)<br>c. Analyze and interpret data from experiments on ecosystems where matter such as fertilizer has been added or withdrawn such as through drought (DOK 1-3)<br>d. Develop, communicate, and justify an evidence-based scientific explanation showing how ecosystems follow the laws of conservation of matter and energy (DOK 1-3)<br>e. Define and distinguish between matter and energy, and how they are cycled or lost through life processes (DOK 1-2)<br>f. Describe how carbon, nitrogen, phosphorus, and water cycles work (DOK 1)<br>g. Use computer simulations to analyze how energy flows through trophic levels (DOK 1-2) | | | | |
| | **2. The size and persistence of populations depend on their interactions with each other and on the abiotic factors in an ecosystem**<br>a. Analyze and interpret data about the impact of removing keystone species from an ecosystem or introducing non-native species into an ecosystem (DOK 1-3)<br>b. Describe or evaluate communities in terms of primary and secondary succession as they progress over time (DOK 1-2)<br>c. Evaluate data and assumptions regarding different scenarios for future human population growth and their projected consequences (DOK 1-3)<br>d. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate ecosystem interactions (DOK 1-2) | | | | |
| | **3. Cellular metabolic activities are carried out by biomolecules produced by organisms**<br>a. Identify biomolecules and their precursors/building blocks (DOK 1)<br>b. Develop, communicate, and justify an evidence-based explanation that biomolecules follow the same rules of chemistry as any other molecule (DOK 1-3)<br>c. Develop, communicate, and justify an evidence-based explanation regarding the optimal conditions required for enzyme activity (DOK 1-3)<br>d. Infer the consequences to organisms of suboptimal enzyme function – such as altered blood pH or high fever – using direct and indirect evidence (DOK 1-3)<br>e. Analyze and interpret data on the body's utilization of carbohydrates, lipids, and proteins (DOK 1-2) | | | | |

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| | **4. The energy for life primarily derives from the interrelated processes of photosynthesis and cellular respiration. Photosynthesis transforms the sun's light energy into the chemical energy of molecular bonds. Cellular respiration allows cells to utilize chemical energy when these bonds are broken**<br>a. Develop, communicate, and justify an evidence-based scientific explanation the optimal environment for photosynthetic activity (DOK 1-3)<br>b. Discuss the interdependence of autotrophic and heterotrophic life forms such as depicting the flow of a carbon atom from the atmosphere, to a leaf, through the food chain, and back to the atmosphere (DOK 1-2)<br>c. Explain how carbon compounds are gradually oxidized to provide energy in the form of adenosine triphosphate (ATP), which drives many chemical reactions in the cell (DOK 1-2) | | | | |
| | **5. Cells use the passive and active transport of substances across membranes to maintain relatively stable intracellular environments**<br>a. Analyze and interpret data to determine the energy requirements and/or rates of substance transport across cell membranes (DOK 1-2)<br>b. Compare organisms that live in freshwater and marine environments, and identify the challenges of osmotic regulation for these organisms (DOK 2)<br>c. Diagram the cell membrane schematically, and highlight receptor proteins as targets of hormones, neurotransmitters, or drugs that serve as active links between intra and extracellular environments (DOK 1)<br>d. Use tools to gather, view, analyze, and interpret data produced during scientific investigations that involve passive and active transport (DOK 1-2)<br>e. Use computer simulations and models to analyze cell transport mechanisms (DOK 1-2) | | | | |
| | **6. Cells, tissues, organs, and organ systems maintain relatively stable internal environments, even in the face of changing external environments**<br>a. Discuss how two or more body systems interact to promote health for the whole organism (DOK 1-2)<br>b. Analyze and interpret data on homeostatic mechanisms using direct and indirect evidence to develop and support claims about the effectiveness of feedback loops to maintain homeostasis (DOK 1-2)<br>c. Distinguish between causation and correlation in epidemiological data, such as examining scientifically valid evidence regarding disrupted homeostasis in particular diseases (DOK 2)<br>d. Use computer simulations and models of homeostatic mechanisms (DOK 1-2) | | | | |

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| | **7. Physical and behavioral characteristics of an organism are influenced to varying degrees by heritable genes, many of which encode instructions for the production of proteins**<br>a. Analyze and interpret data that genes are expressed portions of DNA (DOK 1-2)<br>b. Analyze and interpret data on the processes of DNA replication, transcription, translation, and gene regulation, and show how these processes are the same in all organisms (DOK 1-2)<br>c. Recognize that proteins carry out most cell activities and mediate the effect of genes on physical and behavioral traits in an organism (DOK 1)<br>d. Evaluate data showing that offspring are not clones of their parents or siblings due to the meiotic processes of independent assortment of chromosomes, crossing over, and mutations (DOK 1-2)<br>e. Explain using examples how genetic mutations can benefit, harm, or have neutral effects on an organism (DOK 1-2) | | | | |
| | **8. Multicellularity makes possible a division of labor at the cellular level through the expression of select genes, but not the entire genome**<br>a. Develop, communicate, and justify an evidence-based scientific explanation of how cells form specialized tissues due to the expression of some genes and not others (DOK 1-3)<br>b. Analyze and interpret data that show most eukaryotic deoxyribonucleic acid (DNA) does not actively code for proteins within cells (DOK 1-2)<br>c. Develop, communicate, and justify an evidence-based scientific explanation for how a whole organism can be cloned from a differentiated – or adult – cell (DOK 1-3)<br>d. Analyze and interpret data on medical problems using direct and indirect evidence in developing and supporting claims that genetic mutations and cancer are brought about by exposure to environmental toxins, radiation, or smoking (DOK 1-3) | | | | |
| | **9. Evolution occurs as the heritable characteristics of populations change across generations and can lead populations to become better adapted to their environment**<br>a. Develop, communicate, and justify an evidence-based scientific explanation for how Earth's diverse life forms today evolved from common ancestors (DOK 1-3)<br>b. Analyze and interpret multiple lines of evidence supporting the idea that all species are related by common ancestry such as molecular studies, comparative anatomy, biogeography, fossil record and embryology (DOK 2-3)<br>c. Analyze and interpret data suggesting that over geologic time, discrete bursts of rapid genetic changes and gradual changes have resulted in speciation (DOK 1-3)<br>d. Analyze and interpret data on how evolution can be driven by three key components of natural selection – heritability, genetic variation, and differential survival and reproduction (DOK 1-3)<br>e. Generate a model – an evolutionary tree – showing how a group of organisms is most likely diverged from common ancestry (DOK 2-3) | | | | |

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| 3 | **Earth Systems Science** | **34%** | 20 | 7 | 27 |
| | **1. The history of the universe, solar system and Earth can be inferred from evidence left from past events**<br>a. Develop, communicate, and justify an evidence-based scientific explanation addressing questions about Earth's history (DOK 1-3)<br>b. Analyze and interpret data regarding Earth's history using direct and indirect evidence (DOK 1-2)<br>c. Analyze and interpret data regarding the history of the universe using direct and indirect evidence (DOK 1-2)<br>d. Seek, evaluate, and use a variety of specialized resources available from libraries, the Internet, and the community to find scientific information on Earth's history (DOK 1-2)<br>e. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate the history of the universe, solar system and Earth (DOK 1-2) | | | | |
| | **2. As part of the solar system, Earth interacts with various extraterrestrial forces and energies such as gravity, solar phenomena, electromagnetic radiation, and impact events that influence the planet's geosphere, atmosphere, and biosphere in a variety of ways**<br>a. Develop, communicate, and justify an evidence-based scientific explanation addressing questions around the extraterrestrial forces and energies that influence Earth (DOK 1-3)<br>b. Analyze and interpret data regarding extraterrestrial forces and energies (DOK 1-2)<br>c. Clearly identify assumptions behind conclusions regarding extraterrestrial forces and energies and provide feedback on the validity of alternative explanations (DOK 2-3)<br>d. Use specific equipment, technology, and resources such as satellite imagery, global positioning systems (GPS), global information systems (GIS), telescopes, video and image libraries, and computers to explore the universe (DOK 1-2) | | | | |
| | **3. The theory of plate tectonics helps to explain geological, physical, and geographical features of Earth**<br>a. Develop, communicate, and justify an evidence-based scientific explanation about the theory of plate tectonics and how it can be used to understand geological, physical, and geographical features of Earth (DOK 1-3)<br>b. Analyze and interpret data on plate tectonics and the geological, physical, and geographical features of Earth (DOK 1-2)<br>c. Understand the role plate tectonics has had with respect to long-term global changes in Earth's systems such as continental buildup, glaciations, sea-level fluctuations, and climate change (DOK 1-2)<br>d. Investigate and explain how new conceptual interpretations of data and innovative geophysical technologies led to the current theory of plate tectonics (DOK 2-3) | | | | |

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| | | | For Concept/ Skill | For Concept/ Skill and SI/NS* | Total |
| | **4. Climate is the result of energy transfer among interactions of the atmosphere, hydrosphere, geosphere, and biosphere**<br>a. Develop, communicate, and justify an evidence-based scientific explanation that shows climate is a result of energy transfer among the atmosphere, hydrosphere, geosphere and biosphere (DOK 1-3)<br>b. Analyze and interpret data on Earth's climate (DOK 1-2)<br>c. Explain how a combination of factors such as Earth's tilt, seasons, geophysical location, proximity to oceans, landmass location, latitude, and elevation determine a location's climate (DOK 1-3)<br>d. Identify mechanisms in the past and present that have changed Earth's climate (DOK 1)<br>e. Analyze the evidence and assumptions regarding climate change (DOK 1-3)<br>f. Interpret evidence from weather stations, buoys, satellites, radars, ice and ocean sediment cores, tree rings, cave deposits, native knowledge, and other sources in relation to climate change (DOK 1-3) | | | | |
| | **5. There are costs, benefits, and consequences of exploration, development, and consumption of renewable and nonrenewable resources**<br>a. Develop, communicate, and justify an evidence-based scientific explanation regarding the costs and benefits of exploration, development, and consumption of renewable and nonrenewable resources (DOK 1-3)<br>b. Evaluate positive and negative impacts on the geosphere, atmosphere, hydrosphere, and biosphere in regards to resource use (DOK 2-3)<br>c. Create a plan to reduce environmental impacts due to resource consumption (DOK 2-3)<br>d. Analyze and interpret data about the effect of resource consumption and development on resource reserves to draw conclusions about sustainable use (DOK 1-3) | | | | |
| | **6. The interaction of Earth's surface with water, air, gravity, and biological activity causes physical and chemical changes**<br>a. Develop, communicate, and justify an evidence-based scientific explanation addressing questions regarding the interaction of Earth's surface with water, air, gravity, and biological activity (DOK 1-3)<br>b. Analyze and interpret data, maps, and models concerning the direct and indirect evidence produced by physical and chemical changes that water, air, gravity, and biological activity create (DOK 1-3)<br>c. Evaluate negative and positive consequences of physical and chemical changes on the geosphere (DOK 2-3)<br>d. Use remote sensing and geographic information systems (GIS) data to interpret landforms and landform impact on human activity (DOK 1-2) | | | | |
| | **7. Natural hazards have local, national and global impacts such as volcanoes, earthquakes, tsunamis, hurricanes, and thunderstorms**<br>a. Develop, communicate, and justify an evidence-based scientific explanation regarding natural hazards, and explain their potential local and global impacts (DOK 1-3)<br>b. Analyze and interpret data about natural hazards using direct and indirect evidence (DOK 1-2)<br>c. Make predictions and draw conclusions about the impact of natural hazards on human activity – locally and globally (DOK 2-3) | | | | |

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| | | | For Concept/ Skill | For Concept/ Skill and SI/NS* | Total |
| 4 | **Scientific Investigations and the Nature of Science (SI/NS)** | 25% | The 20 points for SI/NS will be distributed among the 3 content standards. | | |
| | **Asking testable questions, make a falsifiable hypothesis, design an inquiry based method of finding the answer** | | | | |
| SC09-GR.HS-S.1-GLE.2-N.2 | Ask testable questions about the nature of matter, and use an inquiry approach to investigate it. (DOK 1-3) | | | | |
| SC09-GR.HS-S.1-GLE.6-N.2 | Ask testable questions and make a falsifiable hypothesis about the conservation of energy, and use an inquiry approach to find an answer. (DOK 1-3) | | | | |
| SC09-GR.HS-S.2-GLE.5-N.1 | Ask testable questions and make a falsifiable hypothesis about how cells transport materials into and out of the cell and use an inquiry approach to find the answer. (DOK 1-3) | | | | |
| SC09-GR.HS-S.3-GLE.3-N.2 | Ask testable questions and make a falsifiable hypothesis about plate tectonics and design a method to find an answer. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.6-N.1 | Ask testable questions and make a falsifiable hypothesis about physical and chemical changes on the geosphere and use an inquiry based approach to find an answer. (DOK 1-3) | | | | |
| | **Use an inquiry approach to answer testable questions** | | | | |
| SC09-GR.HS-S.1-GLE.1-N.1 | Use an inquiry approach to answer a testable question about an application of Newton's laws of motion. (DOK 1-3) | | | | |
| SC09-GR.HS-S.1-GLE.3-N.3 | Use an inquiry approach to test predictions about chemical reactions. (DOK 1-3) | | | | |
| | **Share results of experiments with others and respectfully discuss results** | | | | |
| SC09-GR.HS-S.1-GLE.1-N.2 | Share experimental data, respectfully discuss conflicting results, and analyze ways to minimize error and uncertainty in measurement. (DOK 2-3) | | | | |
| SC09-GR.HS-S.1-GLE.3-N.4 | Share experimental data, and respectfully discuss conflicting results. (DOK 2-3) | | | | |
| SC09-GR.HS-S.1-GLE.6-N.3 | Share experimental data, and respectfully discuss conflicting results emulating the practice of scientists. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.1-N.2 | Share experimental data, and respectfully discuss conflicting results emulating the practice of scientists. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.5-N.2 | Share experimental data, and respectfully discuss conflicting results emulating the practice of scientists. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.3-N.3 | Share experimental data, and respectfully discuss conflicting results. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.6-N.2 | Share experimental data, and respectfully discuss conflicting results. (DOK 2-3) | | | | |
| | **Differentiate among the use of the terms "law," "theory," and "hypothesis"** | | | | |
| SC09-GR.HS-S.1-GLE.1-N.3 | Differentiate between the use of the terms "law" and "theory" as they are defined and used in science compared to how they are used in other disciplines or common use. (DOK 1-2) | | | | |
| SC09-GR.HS-S.2-GLE.9-N.2 | Differentiate among the use of the terms "hypothesis," "theory," and "law" as they are defined and used in science compared to the usage of these terms in other disciplines or everyday use. (DOK 1-2) | | | | |
| | **Use technology to perform calculations, to gather, view, analyze, interpret and report data, and to communicate information** | | | | |
| SC09-GR.HS-S.1-GLE.1-N.4 | Use technology to perform calculations and to organize, analyze and report data. (DOK 1-2) | | | | |
| SC09-GR.HS-S.1-GLE.4-N.2 | Employ data-collection technology to gather, view, analyze, and interpret data about chemical and physical properties of different compounds. (DOK 1-2) | | | | |

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| SC09-GR.HS-S.3-GLE.6-N.3 | Use appropriate technology to help gather and analyze data, find background information, and communicate scientific information on physical and chemical changes. (DOK 1-2) | | | | |
| | **Use and understand historical context to refine current understanding** | | | | |
| SC09-GR.HS-S.1-GLE.2-N.1 | Recognize that the current understanding of molecular structure related to the physical and chemical properties of matter has developed over time and become more sophisticated as new technologies have led to new evidence. (DOK 1) | | | | |
| SC09-GR.HS-S.1-GLE.4-N.1 | Recognize that the current understanding of molecular structure related to the physical and chemical properties of matter has developed over time and become more sophisticated as new technologies have led to new evidence. (DOK 1) | | | | |
| SC09-GR.HS-S.1-GLE.5-N.2 | Use the historical context and impact of early energy research and consider the potential implications for current energy studies on science and our society. (DOK 1-3) | | | | |
| SC09-GR.HS-S.2-GLE.4-N.1 | Recognize that the current understanding of photosynthesis and cellular respiration has developed over time and become more sophisticated as new technologies have lead to new evidence. (DOK 1) | | | | |
| SC09-GR.HS-S.3-GLE.3-N.4 | Recognize that the current understanding of plate tectonics has developed over time and become more sophisticated as new technologies have lead to new evidence. (DOK 1) | | | | |
| | **Critically evaluate scienctific models** | | | | |
| SC09-GR.HS-S.1-GLE.3-N.1 | Critically evaluate chemical and nuclear change models. (DOK 2-3) | | | | |
| SC09-GR.HS-S.1-GLE.3-N.2 | Identify the strengths and weaknesses of a model which represents complex natural phenomenon. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.4-N.2 | Critically evaluate models for photosynthesis and cellular respiration, and identify their strengths and weaknesses. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.2-N.2 | Critically evaluate strengths and weaknesses of a model which represents complex natural phenomena. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.4-N.1 | Understand how observations, experiments, and theory are used to construct and refine computer models. (DOK 1) | | | | |
| SC09-GR.HS-S.3-GLE.4-N.2 | Examine how computer models are used in predicting the impacts of climate change. (DOK 1-2) | | | | |
| | **Critically evaluate scientific claims generated by the media and by peers** | | | | |
| SC09-GR.HS-S.1-GLE.5-N.1 | Critically evaluate scientific claims made in popular media or by peers regarding the application of energy forms, and determine if the evidence presented is appropriate and sufficient to support the claims. (DOK 2-3) | | | | |
| SC09-GR.HS-S.1-GLE.6-N.1 | Critically evaluate scientific claims made in popular media or by peers regarding the application of energy transformations, and determine if the evidence presented is appropriate and sufficient to support the claims. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.2-N.1 | Critically evaluate scientific explanations in popular media to determine if the research methodology and evidence presented are appropriate and sufficient to support the claims. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.3-N.1 | Critically evaluate scientific explanations in popular media to determine if the research methodology and evidence presented are appropriate and sufficient to support the claims. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.6-N.3 | Differentiate between scientific evidence evaluated by the Food and Drug Administration (FDA) for drug approval and anecdotal evidence shared among individuals or in magazines/newspapers that a food or supplement is effective for a given problem. (DOK 2) | | | | |
| SC09-GR.HS-S.3-GLE.1-N.2 | Critically evaluate scientific claims in popular media and by peers regarding Earth's history, and determine if evidence presented is appropriate and sufficient to support the claims. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.4-N.3 | Critically evaluate scientific claims in popular media and by peers regarding climate and climate change, and determine if the evidence presented is appropriate and sufficient to support the claims. (DOK 2-3) | | | | |
| SC09-GR.HS-S.3-GLE.5-N.1 | Infer assumptions behind emotional, political, and data-driven conclusions about renewable and nonrenewable resource use. (DOK 2-3) | | | | |

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| SC09-GR.HS-S.3-GLE.5-N.2 | Critically evaluate scientific claims in popular media and by peers, and determine if evidence presented is appropriate and sufficient to support the claims. (DOK 2-3) | | | | |

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| | **Understand and critically evaluate scientific theory, experiments and experimental results; design scientfic experiments** | | | | |
| SC09-GR.HS-S.2-GLE.1-N.1 | Address differences between experiments where variables can be controlled and those where extensive observations on a highly variable natural system are necessary to determine what is happening - such as dead zones in the Gulf of Mexico. (DOK 2) | | | | |
| SC09-GR.HS-S.2-GLE.1-N.3 | Design ecological experiments in a closed system. (DOK 2-3) | | | | |
| SC09-GR.HS-S.2-GLE.9-N.1 | Understand that all scientific knowledge is subject to new findings and that reproducible, corroborated, and converging lines of data yield a scientific theory. (DOK 1) | | | | |
| SC09-GR.HS-S.3-GLE.1-N.1 | Understand that all scientific knowledge is subject to new evidence and that the presence of reproducible results yields a scientific theory. (DOK 1) | | | | |
| SC09-GR.HS-S.3-GLE.3-N.1 | Understand that all scientific knowledge is subject to new findings and that the presence of reproducible results yields a scientific theory. (DOK 1) | | | | |
| | **Recognize, describe and analyze the ethical traditions of science** | | | | |
| SC09-GR.HS-S.2-GLE.5-N.3 | Recognize and describe the ethical traditions of science: value peer review; truthful reporting of methods and outcomes; making work public; and sharing a lens of professional skepticism when reviewing the work of others. (DOK 1) | | | | |
| SC09-GR.HS-S.2-GLE.7-N.1 | Recognizing that research on genetically modified organisms is done in university laboratories and seed companies, discuss the implications of different types of funding and the ethical traditions of science: value peer review; truthful reporting of methods and outcomes; making work public; and sharing a lens of professional skepticism when reviewing the work of others. (DOK 1-2) | | | | |
| SC09-GR.HS-S.2-GLE.8-N.2 | Science is influenced by the cultural norms of a society. Discuss the ethical and political issues associated with stem cell research and how these have impacted both the research done and its applications. (DOK 1-3) | | | | |
| | **Understand that scientists work from the assumption that the universe is a single system in which the basic rules are the same everywhere** | | | | |
| SC09-GR.HS-S.2-GLE.7-N.2 | Understand that scientists work from the assumption that the universe is a single system in which the basic rules are the same everywhere - that basic principles for genetics apply to all organisms. (DOK 1) | | | | |
| SC09-GR.HS-S.3-GLE.2-N.1 | Understand the physical laws that govern Earth are the same physical laws that govern the rest of the universe. (DOK 1) | | | | |
| | **Find, evaluate, and select appropriate information from a variety of media sources to answer scientific questions** | | | | |
| SC09-GR.HS-S.2-GLE.6-N.1 | Research and present findings about the results of dietary deficiencies or excesses. (DOK 1-2) | | | | |
| SC09-GR.HS-S.2-GLE.6-N.2 | Research and present findings about how medical problems that impact life span have changed throughout history due to altered lifestyles and advances in medicine. (DOK 1-2) | | | | |
| | **TOTAL** | **100%** | **60** | **20** | **80** |

* Scientific Investigations and the Nature of Science (SI/NS)