

1. Connect the relationship between cause and effect to how it impacts the balance across physical and/or environmental changes.

Student can...	4	3	2	1
1.1: Construct an evidence-based explanation for how changes in conditions may cause/affect survival, reproduction, and speciation.	I can predict changes to the cause and effect relationships between the environment and population survival, reproduction, and speciation following a disturbance.	I can construct an evidence-based explanation for how changes in conditions may cause/affect survival, reproduction, and speciation.	I can describe a cause and effect relationship between the environment and population survival, reproduction, and speciation.	I can identify a cause and effect relationship between the environment and population survival, reproduction, and speciation.
1.2: Make an evidence-based claim for the factors contributing to biological evolution.	I can analyze data to support the mechanism that caused the evolution of a species.	I can make an evidence-based claim for the factors contributing to biological evolution.	I can describe the difference between environmental and genetic factors that contribute to biological evolution.	I can identify the factors that result in the process of evolution.
1.3: Analyze the relationship between human activity and biodiversity.	I can design a solution that could lessen the impact of human activity on biodiversity.	I can analyze the relationship between human activity and biodiversity	I can describe how human activity can impact biodiversity.	I can identify a human activity that affects biodiversity.

2. Analyze and apply how energy and matter transfers and transforms within and across physical and/or environmental processes.

Student can...	4	3	2	1
2.1: Make an evidence-based claim for the formation of energy from cellular processes.	I can evaluate how changes in the environment can impact the cellular processes that result in the formation of energy.	I can make an evidence-based claim for the formation of energy from cellular processes.	I can describe the overall cellular processes that result in the formation of energy.	I can identify the inputs and outputs of cellular processes that result in the formation of energy.
2.2: Evaluate the relationship between matter and flow of energy within an ecosystem.	I can analyze the effects of the loss of matter within an ecosystem on the energy transfer within the ecosystem.	I can evaluate the relationship between matter and flow of energy within an ecosystem.	I can describe the transfer of energy within an ecosystem.	I can identify where energy can be transferred within an ecosystem.

3. Analyze relationships between structure and function of matter as it applies to physical and/or environmental systems.

Student can...	4	3	2	1
3.1: Analyze evidence for how a feedback mechanism maintains homeostasis.	I can synthesize an evidence-based explanation for how environmental and chemical changes affect feedback mechanisms.	I can analyze evidence for how a feedback mechanism maintains homeostasis.	I can describe a feedback mechanism within the body.	I can identify types of feedback mechanisms.
3.2: Formulate an explanation for how specialized cells are developed.	I can evaluate the role of specialized cells in an organism's ability to survive.	I can formulate an explanation for how specialized cells are developed.	I can describe the purpose of cell specialization.	I can identify the types of specialized cells.

4. Critique patterns to predict behavior and relationships within physical, and/or environmental systems.

Student can...	4	3	2	1
4.1: Analyze types of evidence to support common ancestry and biological evolution.	I can predict an evolutionary relationship among species based on multiple lines of evidence.	I can analyze types of evidence to support common ancestry and biological evolution.	I can describe how evidence supports biological evolution.	I can identify the types of evidence that support biological evolution.
4.2: Analyze factors that lead to changes in biodiversity over time.	I can evaluate how a drastic change in biodiversity can have positive or negative effects on the ecosystem.	I can analyze factors that lead to changes in biodiversity over time.	I can describe how a specific factor affects biodiversity.	I can identify the factors that affect biodiversity.
4.3: Analyze the factors that affect the carrying capacity of an ecosystem.	I can synthesize an evidence-based explanation for how limiting factors can affect multiple populations and their carrying capacities.	I can analyze the factors that affect the carrying capacity of an ecosystem.	I can describe how population survival is dependent upon limiting factors.	I can identify the factors that limit population growth.

5. Design and conduct controlled physical and environmental science investigations.

Student can...	4	3	2	1
5.1: Ask testable questions to create hypothesis for scientific investigations.	I can support my hypothesis with background research	I can formulate a hypothesis that relates the independent and dependent variables to a problem or question	I can identify the independent and dependent variables and variables that should be controlled in a lab investigation	I can ask scientific questions relevant to an experimental investigation
5.2: Obtain, evaluate, and communicate information.	I can synthesize claims from peer reviewed scientific material to support a scientific argument.	I can compare and evaluate credible scientific information to support a scientific argument.	I can assess evidence and the usefulness of multiple sources.	I can communicate information from scientific texts
5.3: Design and conduct controlled investigations.	I can refine the current procedure by identifying changes to maximize the precision and accuracy of data collection	I can design a replicable procedure relevant to support or refute the problem/ question or phenomena	I can design steps of a procedure	I can propose a method to collect data on the independent and dependent variable
5.4: Use mathematical and computational representations (tables, graphs) to process data and construct predictions.	I can apply statistical analysis that allows for further discussion and validation of the experiment	I can analyze data through graphs, calculations, and interpretations of qualitative observations	I can differentiate how to best display data in an appropriate computational model	I can organize data in a computation model (table)
5.5: Construct an explanation based on evidence.	I can critique my scientific arguments by challenging ideas and considering contradictory research or diverse perspectives	I can synthesize a valid conclusion that is thoroughly supported with evidence/ data and connects the question/ problem to real-world applications	I can summarize supporting evidence that refers back to the question/ problem	I can state a claim to answer a scientific question
5.6: Evaluate the validity and reliability of data and compare to accepted values or outcomes.	I can substantiate the validity of my experiment through statistical analysis or referencing additional sources to support my results	I can evaluate the reliability and validity of data, including limitations, weakness, and/or experimental errors to suggest improvements	I can suggest realistic modifications to improve validity of the investigation	I can state if the observations or measurements are valid
5.7: I can develop models to support explanations, predict phenomena, analyze systems, and/or solve problems.	I can evaluate the merits and limitations of different models in order to select or revise a model that best fits evidence.	I can develop models to support explanations, predict phenomena, analyze systems, and/or solve problems.	I can manipulate a model to illustrate relationships based on changes in variables or new evidence.	I can select an appropriate model to represent a phenomenon (diagrams, physical replicas, mathematical representations, analogies, and computer simulations).
5.8: Apply engineering practices to design solutions to complex real-world problems.	I can evaluate an engineered solution to a complex real-world problem based on prioritized criteria and trade-offs.	I can design a solution to a complex real-world problem that can be solved through engineering.	I can explain how a complex-real world problem relates to engineering and accounts for societal needs and wants.	I can identify a problem that can be solved through engineering.