



INVESTIGATE THE WORLD

What is the evidence that the student uses scientific procedures and disciplines to investigate natural and/or human global phenomena?

- **SCI11-12.INV1.QUSTN.** Formulates and refines questions about a significant global science issue and develops a specific, focused hypothesis or research thesis.
- **SCI11-12.INV2.SOURC.** Gathers relevant background information from a combination of primary and secondary global sources and compares, analyzes, and evaluates it, providing clear support for the hypothesis or research thesis.
- **SCI11-12.INV3.MODEL.** Identifies multiple existing theories and/or models related to an experimental hypothesis or research thesis and questions, analyzes, and evaluates the credibility and reliability of theories and/or models, providing strong evidence to support or refute them.
- **SCI11-12.INV4.XPRMT.** Designs an experiment that offers a detailed method for investigating and testing the hypothesis or research thesis using appropriate technology, analyzes data from multiple sources, and conclusions follow logically from the evidence to support the hypothesis or research thesis.

RECOGNIZE PERSPECTIVES

What is the evidence that the student interprets and discusses scientific data in the context of complex global systems?

- **SCI11-12.PERS1.CNTXT.** Uses multiple contexts to evaluate how competing interests or interrelationships affect a global science issue and presents and analyzes both a supporting and an opposing view as a way to understand alternate positions.
- **SCI11-12.PERS2.DATA.** Evaluates patterns and relationships in the data by correctly applying mathematical or statistical techniques, identifies and interprets experimental error, outliers, and/or inconsistencies in the data, and concludes by evaluating the hypothesis or research thesis based on evidence from the data.
- **SCI11-12.PERS3.QUSTN.** Poses and discusses relevant new questions in response to the implications of experimental or research findings from differing perspectives and in the context of a global issue.

COMMUNICATE IDEAS

What is the evidence that the student advances and defends arguments that foster collaboration among diverse audiences?

- **SCI11-12.COMM1.PRCDR.** Analyzes experimental and/or research procedures in sufficient detail to be replicated, accurately tests the experimental design, and bibliographic format is consistent for each type of reference and includes multiple sources and citations.
- **SCI11-12.COMM2.VSULS.** Presents data with visual representations that enhance understanding of the science issue and findings for diverse audiences and experimental or research presentation applies conventions of scientific communication to express ideas and learning.
- **SCI11-12.COMM3.TECH.** Selects technology and media for specific purposes and applies them effectively to express and discuss scientific ideas and collaboration across global contexts and locations.
- **SCI11-12.COMM4.FORMT.** Uses communication formats effectively, enhancing discussion of the significance of a science issue, including global implications and personal reflections.

TAKE ACTION

What is the evidence that the student translates scientific inquiry or research results into actions that increase awareness and improve global conditions?

- **SCI11-12.ACT1.PLAN.** Develops an action plan that details individual and collaborative actions or policy based on experimental or research findings that increase awareness and improve local and/or global conditions.
- **SCI11-12.ACT2.IMPCT.** Evaluates available technology and personal views to determine the impact on actions and to consider additional ways to address alternate viewpoints or solutions to the science issue.
- **SCI11-12.ACT3.IMPLT.** Implements an action plan in creative or innovative ways and collects data and analyzes it to determine the impact of actions on the local or global science issue and identify possible unintended consequences.
- **SCI11-12.ACT4.RFLCT.** Articulates in a reflection how the project influenced feelings, thinking, choices, actions, and awareness of alternative thoughts and ideas.