

# HS.Science and Society

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### PERFORMANCE EXPECTATIONS

Students who demonstrate understanding can:

**HS-SS-1 NM. Obtain and communicate information about the role of New Mexico in nuclear science and 21st century innovations including how the national laboratories have contributed to theoretical, experimental, and applied science; have illustrated the interdependence of science, engineering, and technology; and have used systems involving hardware, software, production, simulation, and information flow.** [Clarification Statement: Sandia National Laboratory, Los Alamos National Laboratory, Very Large Array, White Sands, Air Force Research Laboratory, Genome Research, New Mexico Tech, New Mexico State University, University of New Mexico, New Mexico Highlands University, etc.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*.

#### Science and Engineering Practices

##### Obtaining, Evaluating, and Communicating Information

Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs.

- Gather, read, and evaluate scientific and/or technical information from multiple authoritative sources, assessing the evidence and usefulness of each source.

#### Disciplinary Core Ideas

##### ETS1.A Defining and Delimiting Engineering Problems

- Criteria and constraints also include satisfying any requirements set by society, such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them.
- Humanity faces major global challenges today, such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed through engineering. These global challenges may also have manifestations in local communities.

##### ETS1.B Developing Possible Solutions

- When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts.

##### ETS2.B Influence of Engineering, Technology, and Science on Society and the Natural World

- New technologies can have deep impacts on society and the environment, including some that were not anticipated.

#### Crosscutting Concepts

##### Cause and Effect

- Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.

##### Connections to Nature of Science

##### Science is a Way of Knowing

- Science is both a body of knowledge that represents a current understanding of natural systems and the processes used to refine, elaborate, revise, and extend this knowledge.
- Science is a unique way of knowing and there are other ways of knowing.
- Science distinguishes itself from other ways of knowing through use of empirical standards, logical arguments, and skeptical review.
- Science knowledge has a history that includes the refinement of, and changes to, theories, ideas, and beliefs over time.

*Connections to other DCIs in this grade-band: PS 1.A; PS1.B; PS 1.C*

*Articulation of DCIs across grade-bands: N/A*

*Common Core State Standards Connections:*

*ELA/Literacy –*

**RST HS.1**

They demonstrate independence

**SL 9-12.1.A**

Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

**SL 9-12.4**

Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

**SL 9-12.5**

Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

**WHST 9-12.2**

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

*Mathematics –*