NEXT GENERATION SCIENCE STANDARDS (NGSS)

NGSS SEP 7 refers to **Science and Engineering Practice 7** from the **Next Generation Science Standards (NGSS)**, which is:

ENGAGING IN ARGUMENT FROM EVIDENCE

This practice emphasizes the importance of students **engaging in reasoning and argumentation** based on evidence, a key aspect of scientific inquiry and engineering design. Students are expected to make claims, support their arguments with evidence, and consider and evaluate the reasoning behind different viewpoints or solutions. It also encourages students to engage in respectful debate and consider multiple perspectives as they develop their understanding of the world.

In the context of **SEP 7**, students are encouraged to:

- **Construct and defend arguments** based on evidence: Students must use evidence (data, observations, or scientific principles) to make a case for or against a particular idea, model, or solution.
- **Evaluate and critique arguments:** Students must evaluate claims and evidence from others, recognizing assumptions, biases, and the quality of the reasoning provided.
- **Use appropriate reasoning**: In making claims, students must demonstrate their understanding of scientific principles and apply logical reasoning, not just rely on opinions.
- **Refine arguments:** As students engage in scientific discourse, they may refine and revise their arguments in response to feedback, new evidence, or alternative perspectives.

COMMON CORE STATE STANDARDS (CCSS)

ENGLISH LANGUAGE ARTS (ELA)

Writing:

- **W.8.1**: Write arguments to support claims with clear reasons and relevant evidence.
- **W.9-10.1:** Write arguments to support claims with clear reasons and relevant evidence, using a structure that introduces the claim, supports it with valid reasoning and evidence, and maintains a formal style.
- **W.11-12.1:** Write persuasive arguments to support claims with valid reasoning and evidence, acknowledging opposing claims and demonstrating an understanding of the issue.

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Speaking and Listening:

- **SL.8.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- **SL.9-10.1:** Initiate and participate effectively in a range of collaborative discussions, building on others' ideas and expressing their own clearly and persuasively.
- **SL.11-12.1:** Initiate and participate effectively in a range of discussions, building on others' ideas and expressing their own clearly, persuasively, and effectively.

Language:

- **L.9-10.6:** Acquire and use accurate general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level.

SCIENCE STANDARDS (COMMON CORE FOR SCIENCE)

Writing in Science:

- **WHST.9-10.1:** Write arguments focused on discipline-specific content. This involves justifying scientific claims with evidence and addressing counter arguments.
- **WHST.11-12.1:** Write arguments that present and defend a scientific claim, using relevant evidence and effective reasoning.

Speaking and Listening:

- **SL.9-10.1:** Participate in scientific discussions, construct logical and persuasive arguments, and evaluate the validity of others' arguments.
- **SL.11-12.1:** Engage in scientific debates, justifying conclusions based on evidence and addressing alternative viewpoints.