

Science Literacy Readiness Tool

A classroom resource for identifying student needs on performance-based science assessments

Part 1: Reading Demands Checklist

✓ Teachers identify the foundational reading skills necessary to demonstrate proficiency when engaging with NYSSLS-aligned texts and assessment tasks.

Reading Comprehension

- ☐ **identifying** the main idea or purpose of a science passage
- ☐ **decoding** domain-specific vocabulary
- ☐ **incorporate** context clues, visuals, or captions
- ☐ **connect** experimental data to explanatory text
- ☐ **interpret** cause-and-effect or sequence of events

Data Interpretation

- ☐ **analyze** graphs, charts, or models
- ☐ **determine** units, labels, or scales
- ☐ **synthesize** data across multiple representations
- ☐ **Identify** trends and relationships
- ☐ **Interpret** significance or trends- *what the trend means* in a broader context.
- ☐ **applying** cause-and-effect thinking
- ☐ **combining** evidence from the text with background knowledge making an inference to form a new idea.

Part 2: Writing Demands for Constructed Response Questions Checklist

✓ Teachers identify the foundational writing skills necessary to demonstrate proficiency when responding to NYSSLS-aligned texts and assessment tasks.

Idea Development: Reasoning & Argument Making

- ☐ **Make an evaluation** of a phenomena based on evidence (claim)
➤ The phenomena + evaluation = reason
- ☐ **provide** relevant and sufficient evidence
- ☐ **connect** evidence to claim with sound logical rationale

Organization & Clarity

- ☐ **utilize** a logical order or sequence structure in writing
- ☐ **explain** ideas with clear and concise language
- ☐ **provide** a clear transition between ideas

Language & Conventions

- ☐ **use** scientific vocabulary in writing
- ☐ **promote** clarity through appropriate grammar, spelling, or mechanics

Foundational Skills for Scientific Explanations

1. Content Knowledge

- Understanding key scientific concepts, vocabulary, and processes relevant to the phenomenon.
- Recognizing cause-and-effect relationships in science.

2. Reading & Evidence Gathering

- Ability to read scientific texts, data tables, charts, and graphs to extract relevant evidence.
- Distinguishing between relevant and irrelevant information.
- Paraphrasing or summarizing evidence accurately.

3. Reasoning Skills

- Making connections between evidence and scientific principles (not just listing facts).
- Identifying patterns, trends, and relationships in data.
- Applying inference and deductive reasoning to explain how evidence supports a claim.

4. Writing & Communication Skills

- Organizing ideas logically:
 - Claim → What is the explanation?
 - Evidence → What data or information supports it?
 - Reasoning → Why does the evidence support the claim (the science principles that link them)?
- Using precise scientific language and vocabulary.
- Explaining cause-and-effect clearly.

5. Argumentation & Critical Thinking

- Considering alternative explanations or counterarguments.
- Evaluating the quality, reliability, and sufficiency of evidence.
- Revising explanations when new evidence arises.

6. Executive Function & Metacognition

- Planning and structuring an explanation (often with a framework like CER – Claim, Evidence, Reasoning).
- Monitoring clarity and coherence while writing.
- Reflecting: “Does my evidence really support my claim?”