

Disciplinary Literacy in Science

Text Types in Science

Scientific literacy involves engaging with a range of text types that require students to analyze evidence, interpret technical language, evaluate credibility and synthesize information to develop a deep understanding of scientific concepts and practices. Examples of scientific texts include research articles, lab reports, technical papers, instructions and manuals, data representations and models, and multimodal texts (e.g., infographics, diagrams, videos) that explain scientific phenomena visually and textually.

“Teaching science-specific disciplinary literacy is essential in helping students become critical thinkers and problem solvers, skills that are pivotal as careers evolve.”

(Oregon’s Adolescent Literacy Framework, page 125)

Explicitly Teaching Literacy Practices in Science Classrooms

PRACTICE: Help students expand scientific vocabulary and conceptual understanding by connecting to their prior knowledge.

Scientific texts often include a high density of technical terms. Teachers can support students to build a conceptual understanding of a scientific topic by leveraging students’ existing world knowledge and everyday language before introducing specialized vocabulary. Encouraging students to communicate ideas in familiar terms helps them make meaningful connections, allowing for a smoother transition to using the technical terminology used in scientific texts.

EXAMPLE: *After completing a lab experiment where fat and sodium hydroxide react to create soap, 8th grade students use everyday language to share their observations of the reaction. The teacher then introduces key technical terms such as chemical reaction, reactants, products and compounds, deliberately connecting the students’ everyday language with the scientific terminology. The teacher facilitates a discussion on how these terms can be used to more accurately describe students’ observations and students revise their lab reports to ensure accurate use of important vocabulary.*

PRACTICE: Teach students about comprehension strategies specific to scientific texts.

Students benefit when teachers clarify purposes for reading, how to break down conceptually dense text, and how to interpret data sets and structures for presenting arguments and findings. Practicing discipline-specific comprehension strategies, like annotation and interpreting charts and graphs, supports students to engage deeply with scientific texts.

EXAMPLE: *To prepare for an investigation about cellular respiration, a science teacher models how to identify information that can be used as evidence to support a specific claim in a research article on cellular respiration. Students then review another text on their own to identify evidence to support a claim about cellular respiration.*

PRACTICE: Teach students to clearly and accurately communicate complex scientific ideas in writing.

By analyzing authentic model texts and applying revision strategies to their own writing, such as refining word choice, restructuring sections for coherence and enhancing data representations, students refine their scientific reasoning, clarify their ideas and strengthen the connection between evidence and conclusions.

EXAMPLE: *To prepare for writing lab reports in a physics class, students analyze model lab reports. They use a peer-review rubric to assess the clarity and accuracy of explanations of an egg drop experiment and provide targeted feedback on precision, ensuring that explanations of velocity, acceleration and force calculations are logically structured, supported by evidence and scientifically accurate. The teacher then leads the class through a collaborative revision of one of the model lab reports.*

PRACTICE: Provide structured opportunities for scientific dialogue and discussion.

Authentic discussions enable students to critically analyze scientific texts, evaluate evidence, question assumptions and engage in inquiry-driven conversations that deepen their understanding of complex concepts. Educators support students by modeling how to engage in productive scientific discussions and structuring opportunities for collaborative investigations of real-world phenomena where students formulate questions, use evidence to support explanations and arguments and communicate findings.

EXAMPLE: *In an Earth sciences unit, students read texts in their adopted curriculum about climate change, including shifts in Earth's carbon reservoirs, short- and long-term carbon cycles, temperature and atmospheric gas data, and human activities. The teacher facilitates a group discussion of the pros and cons of one strategy to combat climate change then students talk in partners about different strategies. They use scientific terminology and details from the text to support recommendations that evidence suggests will be most effective.*



Questions for teachers reflecting on and discussing their practice:

- ⦿ What do you think it looks like to read, write and speak like a scientist?
- ⦿ What text types are most challenging for your students and what strategies could help make them more accessible?
- ⦿ How can you expand opportunities for students to engage in scientific discourse about real-world phenomena?

**Learn more about disciplinary literacy in science in
[Oregon's Adolescent Literacy Framework, pages 125–137.](#)**