



CRS

COMMUNITY RESOURCES FOR SCIENCE

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Strengthening Science Writing Skills

CCELA Standards require students to produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.

There are several science-specific writing formats, including:

- Experimental Records
- Learning Notes
- Research Reports
- Science Investigation Posters

Several tactics can improve student performance in science and writing.

➤ Provide progressive learning experiences to strengthen writing in specific science formats
Instruction can develop over time, moving from showing models of good writing of this type, providing structures and sentence frames for student content, and then moving to more independent writing with ongoing access to a word bank. Teacher comments on writing are an important part of this process: *pointers* about elements that are missing or unfocused and *positive affirmations* of writing that meets the key goals.

➤ Review and revise science journal structure and teaching approach to help students develop skills to write clear Experimental Records in accepted format. The overall journal can contain several components that fall into the **Experimental Record, Learning Notes**, and References. At a minimum, ask students to write Experimental Records that use accepted format and science vocabulary, including: a focus topic question, testable hypothesis, clear procedure, organized data, analysis of shared data linking opinions and reasons, and a concluding statement.

Related Tool: [Journal Components](#)

➤ Use sentence frames to support the development of science writing, such as prompts to structure the experiment record format or personal learning reflection. Another approach is to use specific frames unique to the investigation that ask students to apply new vocabulary to state the big idea in the lesson, such as: “Consumers get their energy by eating other organisms.”

Related Attached: [Sentence Frame Examples](#)

➤ Use glossaries in student journals, word banks on wall or student-made flashcards to support vocabulary acquisition. Student involvement can vary from looking up needed words in pre-printed glossaries to asking students to create their own content dictionary or flashcards with words, definitions, drawings and using words in their own sentences. In deciding the number to words to introduce and the level of student involvement balance the need to conserve time for critical hands-on experiences, monitoring for accuracy and completeness, and the benefits to student retention of vocabulary.

Related Attached: [Key Vocabulary for 4th and 5th Grade Science](#)

➤ Streamline journal assessment to focus primarily on the Experimental Records section. Assessment can include frequent quick checks for completion, three periodic writing reviews

with comments of particular Experimental Records that the student selects, and eventually student assessment of their own work and a classmate's Experimental Record.

Related Attached: [Experimental Record Checklist](#) (a rubric for students)

- Incorporate a short **research project** that draws on multiple sources to develop an explanatory text, with a clear topic introduction, organized development of topic with facts or examples, appropriate science vocabulary, and a clear concluding statement. This can be a paper and a short oral presentation.
- Include a "**Science Investigation Poster**" learning experience to introduce this important science writing format. Show models with word and graphic content to explain hypothesis, procedures, results and conclusions. Posters could be developed for display or presentations in class or school science fairs.

Note: To create time for this project and replicate actual science practice, poster sessions can incorporate several related experiments usually done in sequence by all students. Assign different related investigations to different teams (i.e. separating mixtures). Each team would present their experiment and then combine to discuss the meaning of the shared, accumulated data. This process also supports speaking and listening skills.