CRS
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practical support for great science teaching

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Strengthening Science Reading Skills

Science reading should be used to support the process of hands-on experimentation critical to science study:

- **reading procedures for experiments**
- **reading experiment records or investigation posters that summarize hands-on experiences**
- **reading science texts after the completion of hands-on experiences to connect personal observations with vocabulary and reinforce academic language**
- **research projects to develop deeper knowledge on specific subjects.**

The first two experiences are an ongoing part of elementary science classes, and the second two longer-term reading experiences (text reading and research) are used periodically to follow direct observation experiences.

In schools with separated time for science and English instruction, reading science texts and longer research projects are typically part of the English Language Instruction since they focus on developing reading and writing skills rather than understanding basic science content.

In Science Instructional Time:

- **Provide all instructions and procedures in writing, as well as verbally and by demonstration**, to build reading skills and vocabulary related to science materials and techniques. Strengthen reading skills by asking students to:
  - verbally "*describe the steps in a procedure*" and eventually write up their own procedures for an investigation.

- **Provide models of good experiment records and investigation posters** for students to read as background and to foster writing skills in these formats. Strengthen science reading by asking students to perform the following CCELA performance skills when reading and discussing material:
  - "*describe the connection between steps in the technical procedures*"
  - "*determine two or more main ideas of text and explain how they are supported by key details*"
  - *"Explain how images contribute to and clarify the text"*
  - *Summarize* what the report or poster says *explicitly or by inference, using accurate quotes*

- **Ask students to *read and compare experiment records or descriptions of the same event to note important similarities and differences* in conclusions and ideas.**

- **Ask students to *determine meaning* of all science phrases and words** using glossaries (provided or constructed by students) or other tools.

- **Summarize units with a review of experiment records and/or other text passages related to the topic**. Strengthen science reading by asking students to perform the following CCELA performance skills:
  - *"Describe the connection between a series of scientific ideas"*

- "*Explain relationships or interactions between two or more events or ideas in the written material based on specific information in the text*"
- Determine the meaning of science phrases and words using their glossaries and

- **Do at least one short research project related to science topics**, providing support with lists of credible and accessible science resources in print and on-line. Strengthen science reading by asking students to perform the following CCELA performance skills:
  - Find information from multiple print or digital sources using valid search and selection techniques
  - Integrate information from several text to write or speak about subject knowledgeably

In English Language Instructional Time

- **Coordinate informational text reading (science curriculum materials, additional recommended science information texts) with ongoing investigations** to strengthen vocabulary understanding and retention. Reading experiences should follow science observations. Science Resource Teachers, librarians, or resource agencies like Lawrence Hall of Science or Community Resources for Science can often recommend books.

- **Do at least one research and writing project related to a subject being studied in the ongoing science curriculum**. Some curricula like FOSS texts list possible research and writing projects at the back of each chapter. Science Resource Teachers can also recommend engaging topics that coordinate with hands-on instruction.