

Developing Literacy and Addressing Content Standards Through Issue-oriented Science

Laura Lenz & Maia Willcox

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Quick Write

Why does literacy have a place in a science classroom?

How do you currently incorporate literacy skills in your classroom?

Why Literacy in Science?

- Enhances reading, writing, and communication skills.
- Develops habits of mind and knowledge of science to make sense of ideas, claims, and events in everyday life.
- Provides a basis for informed decision-making.

Issue-Oriented Science

- Provides a natural hook for students
- Allows for learning of science concepts in a relevant, more familiar context
- Students use scientific evidence in part to make informed decisions
- Students read, write, and discuss science concepts in a more authentic way

Issue-oriented Science and Inquiry

Less Emphasis On	More Emphasis On
Discussing science in isolation	Discussing science concepts and understanding in the context of personal and societal issues
V Literacy	Working with a group that simulates the work of a scientific community or policy group
A Supports	Acquiring conceptual understanding and applying information and conceptual understanding in making personal, societal, and global decisions
Testing students for understanding at the end of the unit	Embedded assessments throughout the unit and culminating assessment activities
Closed questions with one correct answer	Open-ended questions that require students to explain phenomena or take positions backed by evidence

Research has shown that the acquisition of literacy skills is significantly enhanced when those skills are used for specific purposes within meaningful and stimulating context.

The Foundations of Literacy
Holdaway, 1979

Evolution

- From *Issues and Life Science*
 - A unit that focuses on how organisms evolve and how they are related
- Students interpret sources of evidence for evolution.
- Students decide whether to re-create an extinct species.

Inquiry Standards Addressed

Communicate and defend a scientific argument:

- Use language appropriately
- Relate explanations to evidence
- Construct a reasoned argument
- Respond appropriately to critical comments

Activity: Here Today, Gone Tomorrow?

Students discuss the trade-offs in deciding whether to save an endangered species or to re-create an extinct one.

Activity: Here Today, Gone Tomorrow?

- Read the introduction and challenge

Activity: Here Today, Gone Tomorrow?

- Use Student Sheet 89.1, “Three-Level Reading Guide: Here Today, Gone Tomorrow?” to guide you as you complete the reading.

Activity: Here Today, Gone Tomorrow?

- Use Student Sheet 89.2, “Discussion Web: Should the Asian Elephant Be Saved?” to organize the information about the issue.

Activity: Here Today, Gone Tomorrow?

Walking Debate

- Stand in the area that best reflects your thinking about the topic.
- Talk within your group to create a convincing, evidence-based argument to bring people from the other side to your side.
 - Use your Discussion Web for reference

Supporting Reading

Three-Level Reading Guide

- Helps support student performance in reading comprehension
- Provides statements at three levels:
 - Literal
 - Interpretive
 - Applied (do not have correct response)
- Students determine which statements are supported by the text.

Supporting Discussion

Discussion Web

- Framework for students to engage with text and communicate with each other about it
- Helps students come to an evidence-based decision

Supporting Discussion

Walking Debate

- Works best when the question or issue has no correct answer
- Helps foster the skills of debate and evidence analysis

Supporting Writing

Writing Frame

- Analysis Question 4 is an opportunity for students to write about evidence they have gathered.
- A **Writing Frame** is an outline to help structure students' writing by providing prompts and space for writing.
 - Helps support students in the writing of extended responses.

Literacy in the science classroom...

- Supports students' reading comprehension while they are engaged in content-rich and relevant reading.
- Facilitates group discussion and debate.
- Enhances student writing.

Contact Information

Laura Lenz

lalenz@berkeley.edu

(510) 642-8718

Maia Willcox

mwillcox@berkeley.edu

(510) 642-8718