Science and Literacy

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Warm-up

How would you define literacy in the context of science education?

Why is literacy important in science education?
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.
Language is acquired best when:

- Anxiety is low
- Interaction is high
- The context and language are real and purposeful
- Language is made comprehensible
- Students feel confident and competent
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
Water

- From *Issues and Physical Science*
- A unit that focuses on the issue of water quality
- Students learn about properties of water, water treatment, water testing
- Historical look at John Snow and the discovery of how cholera is spread
Activity 33: John Snow and the Search for Evidence

What kinds of evidence would help Dr. Snow prove his hypothesis on how cholera spreads?

Provides an opportunity for students to write scientifically using claims, evidence, and reasoning.
Your Task

• Complete the Reading, “Dr. Snow’s Hypothesis” using the Double Entry Journal

• Complete Analysis Question 3
## Dr. Snow’s Data

<table>
<thead>
<tr>
<th></th>
<th>Number of Houses</th>
<th>Deaths from Cholera</th>
<th>Deaths per 10,000 Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S &amp; V Water Company</strong></td>
<td>40,046</td>
<td>1,263</td>
<td>315</td>
</tr>
<tr>
<td><strong>Lambeth Water Company</strong></td>
<td>26,107</td>
<td>98</td>
<td>37</td>
</tr>
<tr>
<td><strong>Rest of London</strong></td>
<td>256,423</td>
<td>1,422</td>
<td>59</td>
</tr>
</tbody>
</table>
SEPUP Use of Literacy

- Support reading comprehension
- Facilitate group discussion
- Synthesize concepts and vocabulary
- Enhance student writing
Strategies for Enhancing Student Writing

- Science Notebook Writing Guidelines
- Writing a Formal Lab Report Guidelines
- KWL
- Writing Frame
- Double Entry Journal
Scaffolding Writing for Learners at Different Levels

Highly Structured Writing Frame provides prompts to help students organize content
Moderate Structure

Ask students to use the claim, evidence and reasoning format to write an explanation for the cause of the spread of cholera.
Claim, Evidence, and Reasoning

**Claim**: A conclusion drawn from information

**Evidence**: The information that supports the claim

**Reasoning**: How the evidence supports the claim
Claim: The spread of cholera is due to contaminated water from the S&V Water Company.

Evidence: The S&V Water Co. supplies 40,046 houses and has caused 1,263 deaths. The Lambeth Water Co. supplies 26,107 houses and has caused 98 deaths. The rest of London is supplied by other companies that caused 1,422 deaths.

Reasoning: Since Lambeth moved their pipes upstream, they have had the fewest cholera deaths, which means the water is clean.
Minimal Structure

Instruct students to write a response based on the information.

- One option is to instruct students to incorporate the claim, evidence and reasoning format within a freely structured response.

- Students may also choose the genre for their response: letter, brochure, etc.
Your Classroom

How could you use the strategies we talked about today in your own classroom?
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