Disciplinary Literacy & Understanding the Science Tasks

By: K. Renae Pullen

Modified from presentation by state science assessment coordinators: Danna Clinton and Jill Cowart

Objectives

I Can…

- Identify how disciplinary literacy differs from content reading strategies
- Describe the format and structure of the science tasks
- Discuss lessons learned from Spring 2014
- Shift instruction to promote disciplinary literacy and better prepare students for the science tasks

Overview

A. Disciplinary Literacy
B. Task Specifications
C. Rubrics
D. Lessons Learned (Spring 2014)
E. Science Instructional Task

Disciplinary Literacy

- **Use of discipline specific practices to collect, apply, and communicate content knowledge**
- **Includes engaging experiences connected to informational texts, content vocabulary, and writing for content-specific purposes**

What Does It Look Like?

It Doesn't Look Like This…	I Should Look Like This…
Writing from a personal perspective	Supporting responses with evidence
Teachers interpreting the text	Students interpreting the text
Emphasis on narrative text	Emphasis on informational and nonfiction text
Generalized reading strategies	Content-specific reading strategies
Identifying facts	Interpreting and generating information
Utilizing a single text	Utilizing multiple texts

Disciplinary Literacy: Teachers

Teachers provide opportunities for **students** to:

- Read research
- Ask questions as a scientist
- Analyze and synthesize information
- Use multiple sources of information

Disciplinary Literacy: Students

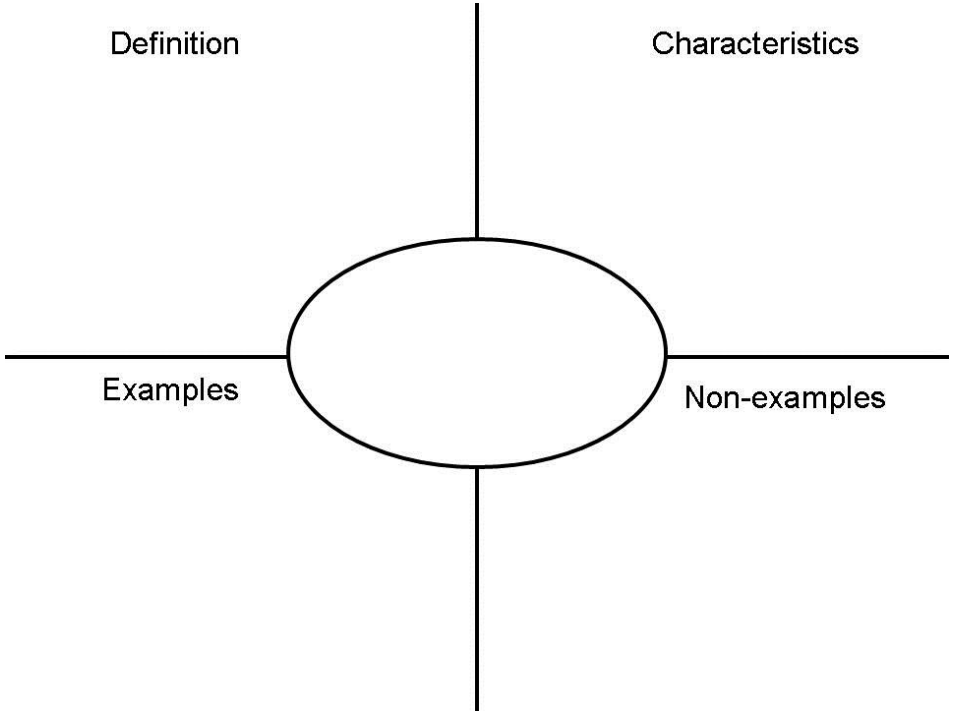
Students:

- Independently read content specific text that supports conceptual understanding
- Discuss and answer text dependent questions
- Cite evidence from text
- Write responses that convey ideas and demonstrate knowledge
- Participate in and/or create research

Disciplinary Literacy is NOT

General content reading strategies:

- Survey, Question, Read, Recite, and Review (SQ3R)
- Know, Want and Learned (KWL)
- Frayer model
- Brainstorming
- Notetaking



Disciplinary Literacy

- Improves with consistent and regular content instruction
- Increases as students are exposed to more informational and nonfiction text
- Helps build students' knowledge base
- Provides a chance to show what students know through writing and research

Next Steps

- Read the article "Teaching Science Literacy" by Maria Grant and Diane Lapp

Relationship between Disciplinary Literacy and the Science Tasks

Requires students to:

- Evaluate sources
- Make claims
- Use evidence
- Construct arguments

*For grade-specific information, see the Task Specifications in the **Assessment Structure** documents.

Science Test Structure

GRADE	MULTIPLE CHOICE	SHORT ANSWER?	TASK?
3	• 1 Sessions • 40 Questions	No	Yes
4	• 1 Session • 40 Questions	**Yes**	Yes
5	• 1 Sessions • 46 Questions	No	Yes
6	• 1 Sessions • 48 Questions	No	Yes

Task Specifications

GRADE	STIMULUS MATERIALS	MULTIPLE CHOICE	EXTENDED RESPONSE
3	1-2	2	0-2 Rubric
4-8	1-2	4	0-4 Rubric

Lessons Learned from Spring 2014

Science-Qualities of Lower Scoring Papers

- Copying relevant parts of the passage without adding new information
- Lack of careful reading of the task and/or not following directions in the task
- Answering only part of the question
- Inserting the multiple-choice answer options as answers
- Misconceptions about the concept being assessed
- Incomplete transfer of answers from planning space to the actual test page that is scored

Task Rubrics

- Available in the Sample Items for each grade
- Responses scored based on how well students
  - Complete the key components of the task
  - Address the prompt with a higher level of reasoning skills that may include applications, procedures, etc.
  - Use evidence from the provided stimulus materials
  - Integrate outside content knowledge
- Student Work Samples provide additional guidance about how to apply the rubrics