

Facilitator's Guidelines for 1st Meeting

Unless otherwise noted, all materials are on the website in the Guidelines for Science-Writing Group Meetings section.

Preparing for the Meeting



Read:

- Writing in Science (or at least skim it)
- pages 1–6 and 149 just before the meeting
- Facilitator's Notes: General Tips for Leading Productive Meetings
- these facilitator's guidelines and the materials that follow



Copy materials for participants as needed:

- Overview of Science-Writing Group Meetings
- Participants' Guiding Questions for 1st Meeting
- Group Norms for Science-Writing Groups
- Background Information for Soils Video Episode on the website



Test the technology and the DVD to be sure that everything will work during the meeting.

Meeting Focus: Attributes of classrooms that support the learning of science and scientific thinking

Beginning the Meeting: Setting the Stage (about 20 minutes)



Ask participants to introduce themselves.



Go over Overview of Science-Writing Group Meetings.



Discuss Group Norms for Science-Writing Groups.



Summarize the main points of the Meeting Overview (see the section that follows) for participants. (You do not have to read it to them.)

Meeting Overview



Through discussions and watching the video episode of an actual classroom, participants will explore and identify attributes of classrooms that support the learning of science and scientific thinking.



Then they will plan ways to implement, in the next few weeks, one effective strategy for developing their students' scientific thinking.



They also will critique notebook entries from the video episode, focusing their assessment on the Three Key Elements (science content, scientific thinking, and scientific skills).

1. Reflecting on Practice (about 30 minutes)

Section Overview: Participants will begin to identify the attributes of classrooms that foster the learning of science and scientific thinking.

- ☐ Discuss the guiding questions.
- ☐ Begin a group list of attributes of classrooms that foster the learning of science and scientific thinking.
- ☐ Let teachers know that learning how to implement this science-writing approach typically takes several years. Teachers who are learning this approach periodically need to be reminded to be patient with their students and with themselves.
- ☐ Note the following about focus questions:
 - The meetings this year are designed to help teachers take small but significant steps in learning this approach to science writing. Focus questions are an important part of the approach, but developing them can be a more complex task than teachers want to attempt in this first year.
 - If teachers want to write their own focus questions (and discuss them outside these meeting times), they can refer to Chapter 7 and Appendix D in Writing in Science. Your district and/or state might have consultants who also could provide support.
 - Even without using focus questions, however, teachers should see a significant improvement in their students' scientific thinking and science-writing skills by implementing a few simple strategies and tools in their instruction in the next few months.

1. Reflecting on Practice

Guiding Questions	Notes
1. How is what you read on pages 1–6 and 149 in <i>Writing in Science</i> similar to and different from what you and your students do during science and science-writing sessions in your classroom? 2. What do you think a classroom looks like that supports the learning of science and scientific thinking? As you make a list, consider: ☐ Teacher behavior ☐ Student behavior ☐ Physical environment in classroom	

2. Viewing and Discussing the Soils Video Episode (about 40 minutes)

Section Overview: Teachers will observe a video episode of a real classroom and identify attributes that they think are contributing to the students' learning of science and scientific thinking.

- ☐ Read together the guiding questions that follow, then view the video episode.
- ☐ Use the questions as a guide as teachers discuss their observations.
- ☐ Then go over the Background Information for the Soils Video Episode. The notes answer questions that teachers typically ask about this episode.
- ☐ Do not go over the Background Information before starting the DVD because this can distract viewers from what they will experience on their own.
- ☐ If needed, revise the group's list of attributes of a classroom that supports students' learning of science and scientific thinking.

2. Viewing and Discussing the Soils Video Episode

Guiding Questions	Notes
1. How does the teacher use modeling and scaffolding in the science session and in the writing session? 2. What modeling and scaffolding do you think helped the students learn the behaviors they demonstrate during the sessions (e.g., talking with each other about their observations and thinking, making and using data tables, talking and writing about evidence)? 3. How does the physical setup of the classroom contribute to the students' learning of science and science writing? 4. What revisions, if any, would you make to the group's list of attributes that you think support students' learning of science and scientific thinking?	

3. Critiquing Notebook Entries (about 15 minutes)

Section Overview: Teachers will critique notebook entries from the videotaped science and writing sessions. The critiquing will focus on the Three Key Elements of this science-writing approach: science content, scientific thinking, and scientific skills.

 Read and discuss Mar'Jon's data table and conclusion (Figures 2–1 and 2–2 in Chapter 2 in Writing in Science in Action) and Jonah's entries (Figures 2–3 and 2–4). Focus on what the entries show about the Three Key Elements: the student's conceptual understanding, scientific thinking, and scientific skills.

 Note that in this science-writing approach, notebook entries are considered rough drafts. In this stage of the writing process, teachers assess the writing traits of content or ideas, organization, and word choice, all of which reflect the Three Key Elements. In the rough draft stage, teachers should not discuss conventions (e.g., grammar, spelling), sentence fluency, or voice, or call attention to handwriting unless a scientist would be unable to read the writing. In addition, teachers always focus first, in this approach, on the strengths of each entry. When they assess notebook entries in this way and give students positive, constructive feedback, students who typically do not enjoy writing become excited to write like adult scientists do. (Chapter 6 in Writing in Science explains this type of assessment and feedback and the research that supports its use.)

3. Critiquing Notebook Entries

Guiding Questions	Notes
1. What <i>strengths</i> do you see in each entry in terms of: ☐ science content understanding? ☐ scientific thinking? ☐ scientific skills? <i>Note:</i> Notebook entries are rough drafts. Do <i>not</i> discuss conventions (e.g., grammar, punctuation, spelling), sentence fluency, voice, or handwriting (unless another scientist could not read the entry).	

4. Considering Next Steps (about 15 minutes)

Section Overview: Participants will reflect about their own instruction in terms of using the word *because* and the phrase *I think this because*.

-  *Share that in over a decade of working with teachers who are just beginning to implement this approach, we know that they begin to notice dramatic improvements in their students' abilities to provide evidence and/or reasoning for their thinking and claims in science (and other areas as well) when they begin to use because and I think this because routinely in their discussions and writing about science. These are critical attributes of a classroom that supports student learning of science and scientific thinking.*
-  *Discuss the guiding question.*

4. Considering Next Steps

Guiding Question	Notes
1. What one or two things could you do with your students in the next few weeks to help them learn to use <i>because</i> and <i>I think this because</i> in their talking and their science notebook entries? <i>Note:</i> This will foster the development of a fundamental scientific thinking skill: providing evidence and/or reasoning for their claims or statements in science. Some strategies to consider: ☐ Explicitly model using <i>because</i> and <i>I think this because</i> in your own talking and writing. ☐ Expect students to use <i>because</i> and <i>I think this because</i> during whole-class and small-group discussions, and in their writing. ☐ Develop and use a science word bank and include <i>because</i> and <i>I think this because</i>.	

5. Preparing for the Next Meeting

1. In the weeks before the next meeting:

- ☐ Reread the following pages in Writing in Science: 81–84 (because), 28–34 (word banks), 34–43 (graphic organizers), 78–80 (Useful Words and Phrases in Scientific Writing).
 - ☐ Begin modeling the use of because and I think this because during discussions and when modeling writing notebook entries.
 - ☐ As you plan instruction for each science session and writing session, make an entry in your own science notebook in the way you will expect students to make the entry. This will help you anticipate issues your students might have in writing the entry, and you can adjust your plan accordingly.
 - ☐ Be sure to incorporate because and I think this because as needed in your science and writing instruction.
2. Confirm the date and time of the next meeting: _____.
 3. Remember to bring the following to the next meeting:
 - ☐ A clear bottle or clear glass of water (You will be writing a scientific observation of this object.)
 - ☐ Writing in Science
 - ☐ Writing in Science in Action
 - ☐ Teacher's guide for your science unit, or whatever instructional materials you use with your current science unit
 - ☐ Your own science notebook