

Facilitator's Guidelines for 3rd Meeting

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

Preparing for the Meeting



Read:

- pages 45–66 in Writing in Science
- these facilitator's guidelines and the materials that follow



Refer to Facilitator's Notes: General Tips for Leading Productive Meetings as needed.



Copy materials for participants as needed:

- Participants' Guiding Questions for 3rd Meeting
 - Scientific Observations, Illustrations, and Diagrams section of the Student Notebook Entries: Pre-kindergarten Through Fifth Grade section on the website
 - Background Information for Ecosystems Video Episode on the website
-  Test the technology and the DVD to be sure that everything will work during the meeting.

Meeting Focus: Scientific observations and illustrations; scientific comparisons

Meeting Overview



Teachers will reflect on how the Observations organizer helped their students learn to work, think, and write like scientists. Participants also will consider how writing scientific observations in their own science notebook affects their planning and instruction, and what additional support they need to provide for students.



Next, participants will critique students' scientific observations, illustrations, diagrams, and data tables.



Teachers will write their own scientific comparison of two objects before watching and discussing a video episode that shows a strategy to use in teaching students how to make and write a comparison.



Finally, participants will discuss which lesson(s) in the next few weeks would be appropriate for teaching students the new strategy.

1. Reflecting on Practice (about 20 minutes)

Section Overview: Participants will reflect on the effects of using the Observations organizer and consider other support they could provide for their students.



Discuss the guiding questions. (The Observations organizer is in Figure 4–1 in Chapter 4 in Writing in Science.)



During the discussion of the first question, note that writing in their own science notebook helps teachers think about different aspects of the students' learning experience, such as:

- *What is important to notice in a scientific observation?*
- *What language do students need for expressing accurate, detailed, and organized scientific observations?*
- *What scaffolding is needed to help provide the language and structure of an observation without giving either too much or too little support?*
- *What questions do we need to ask students about their observations?*



In discussing the third question, note that teachers need to take the time to check if each student can clearly see the visual scaffolding (e.g., word bank, writing frames, class data tables).

1. Reflecting on Practice

Guiding Questions	Notes
1. How did using the Observations organizer and writing your own scientific observation(s) help you plan your instruction? 2. How did using the Observations organizer and other scaffolding and modeling help your students work, think, and communicate like scientists? Give examples. 3. Have you stood by each student's chair to see that everyone can see the word bank and other visual scaffolding? 4. In addition to the displayed scaffolding, what other support would help your students? Consider: ☐ Providing small word cards at each table group so students easily can use the words needed for that lesson in their notebook entry. ☐ Typing a list of the appropriate words for a lesson and placing it in a plastic stand (available at office supply stores) at each table group. ☐ Providing a copy of the Observations organizer to students who can read it.	

2. Critiquing Notebook Entries (about 35 minutes)

Section Overview: Teachers will look at different forms of notebook entries (e.g., notes, written observations, scientific illustrations and diagrams) that reflect students' observational skills, including their ability to record observations that are detailed, organized, accurate, and scientific.

- ☐ Read the first guiding question and discuss Figure 4–16 in Chapter 4 in Writing in Science. Then discuss the comments about the entry on pages 65–67, focusing on the differences between observations and inferences, and scientific and creative writing.
- ☐ By grade-level group if possible, discuss samples from the Scientific Observations, Illustrations, and Diagrams section of Student Notebook Entries. After talking about each sample, discuss the annotations for the sample. If there is time, discuss the samples in the grade above and/or below their grade level.
- ☐ Remember to focus the critiquing on only the Three Key Elements (science content, scientific thinking, and skills) and not conventions (e.g., grammar, spelling), sentence fluency, voice, and handwriting. Also, talk about the strengths of the entry first.
- ☐ End by discussing the other two questions.

2. Critiquing Notebook Entries

Guiding Questions	Notes
1. In Figure 4–16, where is the student making scientific observations and where is she making inferences or doing creative writing? 2. In the other notebook entries, does the student distinguish (if applicable) between: ☐ what is <i>observable</i> (e.g., "I have observed that the plant has brown, shriveled leaves.") ☐ and what is <i>inferred</i> (e.g., "I think this means the plant is dead.")? 3. How does reading and discussing the different entries help you think about teaching your students how to write scientific observations and make scientific illustrations and diagrams?	

3. Writing an Entry: Scientific Comparison (about 10 minutes)

Section Overview: Participants will write a scientific comparison.

 *Without talking with anyone, each participant should write a scientific comparison of a pen and a marker.*

3. Writing a Scientific Comparison

Comparison

4. Viewing and Discussing the Ecosystems Video Episode (about 35 minutes)

Section Overview: Participants will watch a video episode in which a teacher models how to use the box and T-chart strategy for making and writing a comparison.

- ☐ Before watching the video episode, read the guiding questions. Then discuss them after watching the episode.
- ☐ If needed, you can find the Compare and Contrast writing frame in Appendix A–6 in Writing in Science.
- ☐ After the discussion, go over Background Information for the Ecosystems Video Episode.

4. Viewing and Discussing the Ecosystems Video Episode

Guiding Questions	Notes
1. How does the class chart like the one the teacher creates with her students help support students' learning of complex concepts? 2. How does using the box and T-chart strategy help students organize their thinking and develop their conceptual understanding of ecosystems and models? 3. How would your students' ability to make scientific observations affect the quality of their scientific comparisons? 4. Looking back at the comparison you wrote, how do you think using the box and T-chart strategy and the Compare and Contrast writing frame would help students make and write a strong comparison of the two tools?	

5. Critiquing a Notebook Entry from the Ecosystems Video Episode (about 10 minutes)

Section Overview: Participants will critique a box and T-chart and comparison that a student in the videotaped episode wrote.

-  Read and discuss Annie's entries (Figures 4–3 and 4–4 in Chapter 4 in *Writing in Science in Action*), then discuss the guiding question.
-  After teachers have begun discussing the question, share that Annie is an English language learner. She essentially has copied the box and T-chart as well as the opening part of the paragraph during the class discussion. She is stuck when her teacher comes by. Her teacher reminds her (as shown in the video episode) to use "In addition" to begin the sentence and focuses Annie's attention on the Compare and Contrast writing frame. From that point on, Annie does all her writing independently. She just does not have the confidence and some of the skills yet to do the writing all on her own. Phrases like "In addition" and the writing frame provide powerful support that enables her to express her understanding of the science concepts.

5. Critiquing a Notebook Entry from the Ecosystems Video Episode

Guiding Question	Notes
1. How do you think using the box and T-chart strategy and the writing frame helped Annie organize her thinking and express her understanding?	

6. Considering Next Steps (about 10 minutes)

Section Overview: Participants will discuss how they can teach students how to use the box and T-chart strategy in making and writing comparisons in one or more of their upcoming science lessons.

- ☐ If possible, have teachers who are teaching the same science unit, or at least are familiar with the same unit, plan together.
- ☐ The sample minilesson shown on pages 68–71 in Writing in Science will be useful in planning instruction for making and writing scientific comparisons.
- ☐ Discuss the guiding question.
- ☐ Note that the box and T-chart can be overused. Teachers need to think about whether or not the process of making a box and T-chart and writing a comparison will help students learn more about a concept. (Chapter 10 in Writing in Science in Action includes some examples of when writing comparisons is not meaningful because it does not help students develop more understanding of an important idea or concept.)

6. Considering Next Steps

Guiding Question	Notes
1. In which science lesson(s) in the next few weeks will making and writing a comparison help deepen your students' understanding of science content and develop their scientific thinking?	

7. Preparing for the Next Meeting

1. In the weeks before the next meeting:

- ☐ Read pages 67–78 in Writing in Science.
- ☐ Begin modeling how to make scientific comparisons using the box and T-chart strategy and Compare and Contrast writing frame.
- ☐ Continue making entries in your own science notebook as you plan instruction and during investigations, if needed.

2. Confirm the date and time of the next meeting: _____.

3. Remember to bring the following to the next meeting:

- ☐ 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