

Responsive Mini-Lessons: Critiquing—Somewhat Descriptive

About Responsive Mini-Lessons

Responsive Mini-Lessons (RMLs) provide short, targeted lessons that are responsive to each class's facility with oral argumentation, as assessed with the DiALoG Tool. The DiALoG Tool has eight components. Four are intrapersonal—claims, evidence, reasoning, and relevance; four are interpersonal—listening, co-constructing, critiquing, and regulation. RMLs are aimed at providing more practice with one of the eight components of the DiALoG Tool, so your students are more able to work together to enact rich, thoughtful, and engaging oral argumentation. For each component, the following phrases can be assigned, via the DiALoG Tool, to describe your students' abilities: Not Descriptive, Somewhat Descriptive, or Very Descriptive. An assigned phrase of Not Descriptive or Somewhat Descriptive indicates that your students likely need more support with that particular component of oral argumentation; a lesson is then suggested to help your students strengthen their abilities in that area. If the Not Descriptive phrase is assigned, the lesson provides basic, introductory support; if the Somewhat Descriptive phrase is assigned, the lesson assumes some basic facility with that component and provides an opportunity to practice it with more focus.

For the Critiquing RMLs, the Not Descriptive lesson focuses on having students define and identify critiques that are helpful. The Somewhat Descriptive lesson builds on this concept as students practice revising critiques to make them helpful for moving the conversation forward.

Does a Responsive Mini-Lesson for the Somewhat Descriptive Level Make Sense for Your Class?

The suggestion to provide a Responsive Mini-Lesson for the Somewhat Descriptive level indicates that, based on your use of the DiALoG Tool, the following statement best describes your students' use of critique during oral argumentation: *Students sometimes offer helpful critiques for arguments made by others.* For more detail about this level and how it compares to other levels, please see the DiALoG Tool User Guide.

There is one Responsive Mini-Lesson provided for the Somewhat Descriptive level.

Goals

- Provide students with an opportunity to identify unhelpful critiques.
- Provide students with practice revising unhelpful critiques.

Responsive Mini-Lesson

Materials and Teaching Considerations

For the class

- Projection: Scientific Argument diagram
- Copymaster: Revising Critique Scenarios
- Teacher Reference: Revising Critique Scenarios: Possible Student Responses
- 1 sheet of chart paper*
- masking tape*
- marker*
- stapler*

*teacher provided

For each student

- 1 set of Revising Critique Scenarios (3 pages)

Time frame: 30 minutes

Teaching Considerations

Most lessons will begin with an introduction followed by the lesson itself. The introduction is a brief activity that sets up and supports the lesson that follows. Each introduction is teacher-led, while the lesson that follows is more student-centered.

Getting Ready

- 1. Decide how to present the resources for this lesson.** During the introduction, you will present Scientific Argument diagram; during the lesson, you will present Directions for Revising Critique Scenarios. The lesson is written as if these resources will be projected.
 - Alternatively, you can choose to make enough copies of the Scientific Argument diagram so each pair of students receives one copy. (If you do not have a color printer, you can make black-and-white copies for students and project the color version.)
 - Students can follow the directions for the Revising Critique Scenarios on their student sheets as you read aloud the directions.
- 2. If you did not teach the RML for the Not Descriptive level, create a class T-Chart.** On a sheet of chart paper, create a basic T-chart. For the heading on the left side of the chart, write “Helpful critique”; for the

heading on the right side of the chart, write “Unhelpful Critique.”

- 3. Make copies of the Revising Critique Scenarios.** Make enough copies so each pair of students gets one copy of the set of scenarios. There are 3 pages; staple together each set.

Introduction

- 1. If you taught the RML for the Not Descriptive level, review the T-chart.** Remind students that the purpose of critique during science argumentation is to help improve the ideas being discussed.
- 2. If you did not teach the Not Descriptive level, brainstorm a list of helpful and unhelpful critique behaviors with the class.** You might wish to follow the steps below.
 - **Project Scientific Argument diagram.** Review the components as needed. Say, **“An argument you read or write will have these basic components. So will arguments**

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that you make with others while you are speaking. However, when discussing claims and evidence with others, you are often working together to better understand the components of a scientific argument. For example, you may discuss one piece of evidence for a long time in order to better understand it together. We often call this process argumentation—the time when you are still discussing and working out your ideas with others

- **Discuss the social nature of scientific argumentation.** Explain that oral argumentation is a vital part of the scientific endeavor, whether in the classroom or as real scientists communicate. Let students know that while they participate in oral argumentation in the classroom, they should be aware of how they communicate with one another. By paying attention to how they listen and respond to one another, they will learn more from one another and will be able to offer better support to one another as well.
- **Introduce, or review, the concept of critiquing.** Explain that one important aspect of oral argumentation is critique. Ask students what they think the word *critique* means. Then, use their responses to agree on an accessible class definition (e.g., to provide feedback about an idea in order to improve the idea).
- **Brainstorm helpful and unhelpful ways to offer critique.** Explain that as with anything that can feel like

criticism, hearing critique from a peer can feel uncomfortable. However, critique is a necessary and invaluable part of argumentation and of learning in science. Say, **“Everyone’s ideas and thinking get better when respectful and thoughtful critique is offered. There are important ways to deliver critique so it is useful to the conversation and doesn’t hurt people’s feelings. For example, if I said, ‘Your idea is stupid,’ that would be an unhelpful critique since it would make the person hearing it feel bad. A better, more helpful way of saying this might be, ‘I am not sure what you mean. Could you explain your idea in a different way?’”** Have pairs first brainstorm and share with the class unhelpful, less constructive forms of critique. As students share, write their ideas on the T-chart. Have students follow the same procedure for positive, constructive forms of critique.

- **Discuss the use of evidence when providing critique in science.** Explain that in science, ideas are always supported by evidence. When providing critique in oral argumentation, it is important to also provide evidence to support your critique.
- **Quickly summarize thinking.** Review students’ ideas about how to speak to one another in positive ways while providing critique. If it doesn’t come up, emphasize that critique should be focused on ideas that students are grappling with and trying to understand and not on the person

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presenting an idea. Also remind students that their critiques should be supported by evidence.

Lesson

1. Project Directions for Revising Critique Scenarios and introduce the activity.

Explain that pairs will receive a copy of short segments of argumentation that were taken from a whole-class scientific argumentation. Each scenario only focuses on a few students and what they said. Read aloud the directions with students, explaining any aspects that are unclear.

2. Distribute Revising Critique Scenarios.

Distribute one set of Revising Critique Scenarios to each pair of students.

3. Pairs begin working.

Circulate and offer support as needed.

4. Pairs share with the class.

Beginning with Scenario 1, ask students to share their ideas about how they would improve each critique. Continue with Scenarios 2 and 3 in the same way.

5. Summarize important ideas.

Ask students to reflect on the role of critique in argumentation. Be sure to summarize the points that follow. If they aren't already represented on the T-chart, you may want to add them.

• **Helpful critique:**

- focuses on ideas, not the people offering them
- uses evidence
- identifies how another person's idea could be stronger or better supported by evidence

- identifies how another person's idea may not be well supported by evidence
- identifies how someone's ideas may be inconsistent or do not fit together well
- ideas are delivered with a respectful tone
- **Unhelpful critique:**
 - is critical of a person instead of their ideas
 - disagrees with an idea without explaining why you disagree
 - is not based on evidence
 - misrepresents someone else's ideas
 - uses a disrespectful tone or language

Why This Mini-Lesson Matters

This mini-lesson supports students in understanding how something they experience in everyday life—giving and receiving critique and feedback—occurs in distinct ways during science argumentation. It builds on students' existing knowledge to help them learn basic norms of critique in the science community, highlighting how critique in science argumentation serves to collaboratively improve the quality of ideas under consideration by a group of scientists (Driver, Newton, and Osborne 2000). Students benefit from explicit discussion and examples of norms for science discussion because, while aspects of critique may be familiar, the specifics of how it occurs in the discipline of science are likely new (Osborne 2010).

Resources

Driver, R., Newton, P., and Osborne, J. (2000). Establishing the norms of scientific argumentation in classrooms. *Science Education* 84(3): 287–312.

Osborne, J. (2010). Arguing to learn in science: The role of collaborative, critical discourse. *Science* 328(5977): 463–466.



The Learning
Design Group



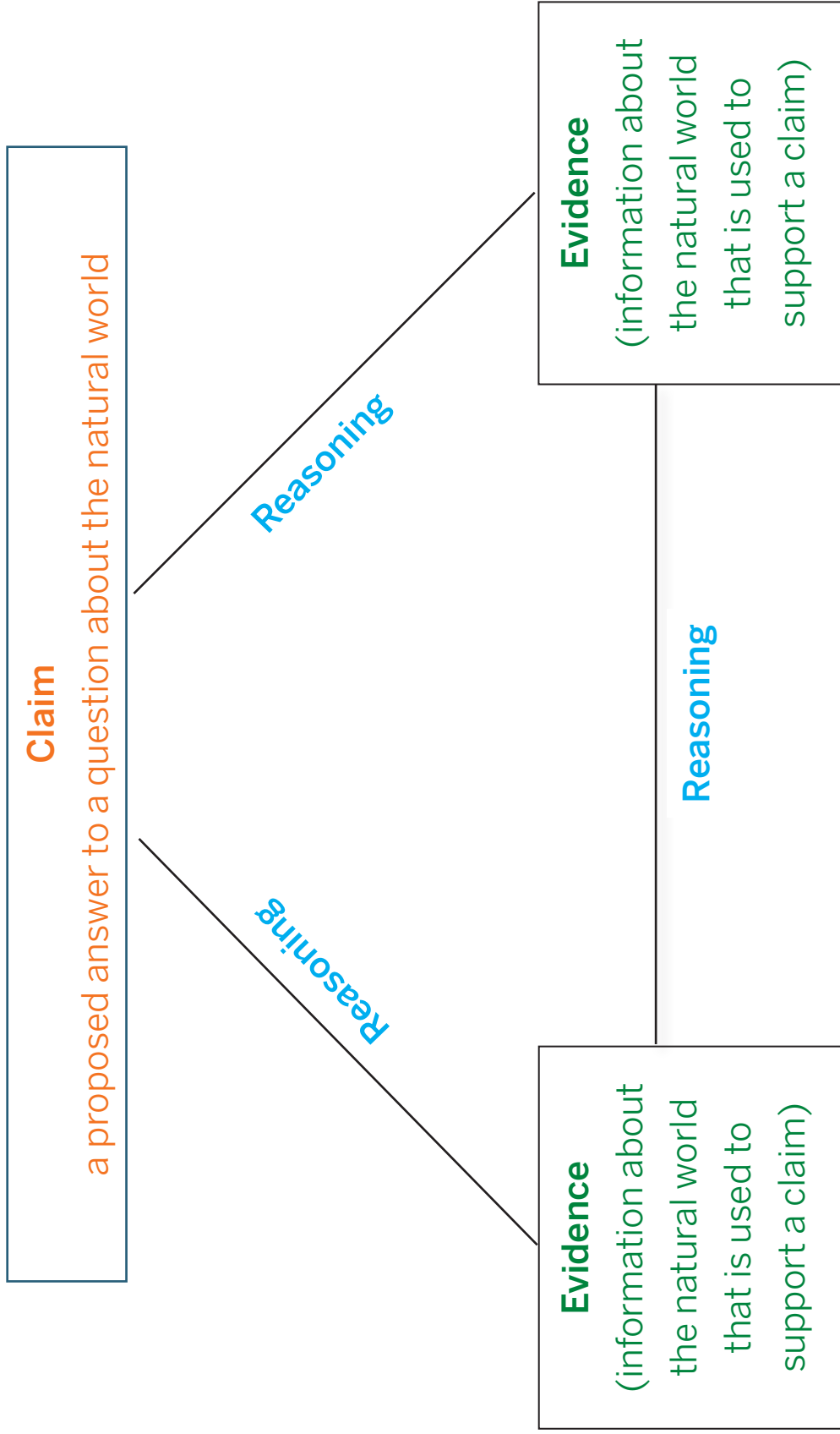
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Scientific Argument

Question about the natural world



Directions for Revising Critique Scenarios

1. With your partner, read the dialogue from each scenario.
2. Discuss when helpful critique was offered and when unhelpful critique was offered.
Make sure to clearly explain your thinking.
3. After each scenario, record suggestions for how to improve the critique. Be prepared to talk about your suggestions with the class.

Names: _____ Date: _____

Revising Critique Scenarios

1. With your partner, read the dialogue from each critique scenario.
2. Discuss when helpful critique was offered and when unhelpful critique was offered. Make sure to clearly explain your thinking.
3. After each scenario, record suggestions for how to improve the critique. Be prepared to talk about your suggestions with the class.

Scenario 1

Student 1: The evidence we have on this card shows that big cats, such as lions, and small house cats all have claws. I think this is evidence that they are related.

Student 2: Well, a lot of animals have claws, so that isn't a good idea.

Student 3: I think you are both wrong.

Changes I would make (If you don't think any changes would be helpful, write "Nothing."): _____

Student 1:

Student 2:

Student 3:

Names: _____ Date: _____

Revising Critique Scenarios (continued)

Scenario 2

Student 1: I am going to disagree with you. I see what you are saying about the storm being stronger and having more rainfall because there is more water evaporating from the ocean. But then why was this other storm strong, too? This other storm is in the middle of the United States, and it's not near an ocean.

Student 2: Well, that other storm was just a weird one. I don't think you can just bring up one example and tell me I'm wrong.

Student 1: Can you explain what you mean?

Student 2: It just isn't a good example.

Changes I would make (If you don't think any changes would be helpful, write "Nothing."):

Student 1:

Student 2:

Student 1:

Student 2:

Names: _____ Date: _____

Revising Critique Scenarios (continued)

Scenario 3

Student 1: Everyone who spoke before me is not really thinking clearly about this, and none of you are making sense. It is obvious that we need a law to stop people from throwing their garbage on the trails in our parks.

Student 2: Well, what about the fact that not all laws work? We read in that one article that many people ignored the law about not taking tadpoles from the pond in the park.

Student 1: That isn't even a law about dumping garbage. I can't believe you are using that as evidence!

Changes I would make (If you don't think any changes would be helpful, write "Nothing."):

Student 1:

Student 2:

Student 1:

Revising Critique Scenarios: Possible Student Responses

Scenario 1

Student 1: The evidence we have on this card shows that big cats, such as lions, and small house cats all have claws. I think this is evidence that they are related.

Student 2: Well, a lot of animals have claws, so that isn't a good idea.

Student 3: I think you are both wrong.

Changes I would make (If you don't think any changes would be helpful, write "Nothing."):

Student 1:

Nothing. No critique offered, but this student is starting the conversation off well by providing evidence.

Student 2:

I understand what you're saying, but I've noticed that a lot of animals have claws. So I'm not sure that the evidence shows that they are related.

Student 3:

I'm not sure I agree with either of you. I think that all animals are related, so I don't know if claws is a good thing to focus on.

OR

I'm not sure I agree with either of you. Could you each explain your thinking more?

Revising Critique Scenarios: Possible Student Responses (continued)

Scenario 2

Student 1: I am going to disagree with you. I see what you are saying about the storm being stronger and having more rainfall because there is more water evaporating from the ocean. But then why was this other storm strong, too? This other storm is in the middle of the United States, and it's not near an ocean.

Student 2: Well, that other storm was just a weird one. I don't think you can just bring up one example and tell me I'm wrong.

Student 1: Can you explain what you mean?

Student 2: It just isn't a good example.

Changes I would make (If you don't think any changes would be helpful, write "Nothing."):

Student 1:

Nothing.

Student 2:

The other storm is a strange example. Maybe we should look at it more closely.

Student 1:

Nothing.

Student 2:

I think that if we look at it together, we might figure it out.

Revising Critique Scenarios: Possible Student Responses (continued)

Scenario 3

Student 1: Everyone who spoke before me is not really thinking clearly about this, and none of you are making sense. It is obvious that we need a law to stop people from throwing their garbage on the trails in our parks.

Student 2: Well, what about the fact that not all laws work? We read in that one article that many people ignored the law about not taking tadpoles from the pond in the park.

Student 1: That isn't even a law about dumping garbage. I can't believe you are using that as evidence!

Changes I would make (If you don't think any changes would be helpful, write "Nothing."):

Student 1:

I'm not sure I understand what everyone was just talking about, but I'm trying to understand. One thing I know is that I think we do need a law to stop people from littering in our parks.

Student 2:

I see your point, but I know that not all laws actually work. Remember that article we read about people taking tadpoles from the pond in the park? The law said they shouldn't do that, but people kept doing it. So, I worry that if we have a law about littering, it won't work.

Student 1:

I wonder if that is the same, though, since one article is about taking tadpoles, which a lot of people like, and the article I'm talking about is about not dumping garbage.