

# Responsive Mini-Lessons: Reasoning—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 Reasoning RMLs, the Not Descriptive lessons provide an introduction to why reasoning is an important part of convincing argumentation by having students practice reasoning with examples of everyday arguments. The Somewhat Descriptive lessons build on this by having students identify and revise reasoning in several arguments to make the arguments more convincing.

## 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 reasoning during oral argumentation: *Students support the claim(s) with evidence and sometimes offer thinking about how the evidence is connected or how it is connected to the claim(s).* For more detail about this level and how it compares to other levels, please see the DiALoG Tool User Guide.

There are two Responsive Mini-Lessons (Lessons A and B) provided for the Somewhat Descriptive level. We suggest that you read over both lessons and decide which to teach. (You may choose to teach just Lesson A, just Lesson B, or both lessons.)

## Goals

- Deepen students' understanding of why reasoning is an important component of convincing oral argumentation.
- Provide students with an opportunity to identify and revise several arguments by adding in reasoning in a variety of open-ended ways.

# Responsive Mini-Lesson A

## Materials and Teaching Considerations

### For the class

- Projection: Broken Vase Argument A
- Projection: Comparing Broken Vase Arguments A and B
- Projection and Copymaster: Argument 1: Exercise and School
- Copymaster: Argument 2: Video Games
- Copymaster: Argument 3: Video Games

### For each pair of students

- 1 copy of Argument 2: Video Games
- 1 copy of Argument 3: Video Games

### For each student

- 1 copy of Argument 1: Exercise and School

**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 example arguments.** During the introduction, you will project Broken Vase Argument A, Comparing Broken Vase Arguments A and B, and Argument 1: Exercise and School. The lesson is written as if these resources will be projected.
  - During the lesson, you will also distribute copies of Argument 1: Exercise and School to students.
- 2. Decide how you will annotate the projected arguments.** We suggest that you project onto a board or whiteboard and annotate on that surface so the provided copies remain clean for future teachings.
- 3. Make copies of Argument 1: Exercise and School.** Make enough copies so each student gets one copy.
- 4. Make copies of Argument 2: Video Games and Argument 3: Video Games.** Make enough copies so each pair of students gets one copy of each argument.

- 5. Write the following questions on the board:**

- Why is this important?
- How is this connected to other parts of the argument (the claim or other evidence)?

## Introduction

- 1. Discuss different forms of argumentation and introduce the lesson.** Explain that working on and practicing argumentation in all forms—reading, writing, listening, and speaking—will make students better at participating in argumentation in general. This lesson will focus on analyzing and revising written arguments. Doing this will also help to strengthen students' abilities to make oral arguments.
- 2. Project and discuss example arguments.**
  - **Project Broken Vase Argument A.** Read aloud the argument and ask students if they are convinced of the claim the author is making. Ask students who respond to explain their

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thinking about why they are convinced or not convinced of the author’s claim.

- **Project Comparing Broken Vase Arguments A and B.** Read aloud Argument B. Ask students to explain which argument is more convincing and why. Point out that Argument B is stronger not simply because it is longer, but because the author takes time to explain why each piece of evidence is important and, at the end, how the evidence supports the claim.

**3. Summarize thinking about the importance of reasoning.** Explain that when you make your reasoning clear by explaining how evidence is connected and why it is important (as in Argument B), you are creating a better and stronger argument.

**4. Discuss goal of making an argument convincing to others and the connection to reasoning.** Remind students that one important goal in argumentation is to make your argument convincing to others. A very important part of being convincing is making your thinking clear so those who are listening or reading your argument can understand it and, possibly, be convinced by what you say. This means helping your reader or listener see how or why your ideas are connected.

### Lesson

- 1. Introduce the lesson.** Explain that students will now work to identify how well some everyday arguments connect their ideas to the claims through reasoning. Then, students will revise the parts of the arguments that are weak.
- 2. Discuss everyday arguments.** Let students know that these arguments will be everyday arguments. For this lesson, it is important

for students to work on arguments about which they have some knowledge so they can easily participate and add their own thinking to the arguments. Therefore, you will be giving them arguments for which students will not need strong science content to understand. Also explain that students don’t have to agree with the claims or the arguments they are working with, but they should try to support them as part of this activity.

**3. Refer students to the questions on the board.** Let students know that these are questions they can ask to help them analyze and think about arguments. You will model how to do this.

**4. Project and distribute one copy of Argument 1: Exercise and School.**

Distribute one argument to each student.

- **Read the entire argument aloud once.** Ask students to follow along as you read. Explain that it is often helpful to read through an entire argument before going back to analyze it.
- **Reread the argument more slowly and analytically.** Explain that now that students have an idea of what the argument is trying to say, they can go back and analyze it.
- **Read aloud the claim (first sentence).** Say, “**This is the claim, or the statement that the argument is trying to support.**”
- **Read aloud the first sentence after the claim.** After reading, ask students the questions on the board. Ask, “**Why is this important?**” “**How is this connected to other parts of the argument (the claim or other evidence.**” Say, “**Since I already read**

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this argument, I know that the evidence isn't really explained or connected to the rest of the argument. To make the argument stronger, I would want the author to say something about why exercise is important or how it connects to the rest of the argument. What are some ideas you have about how sleep can help you do better in school?"

- **Have students share ideas.** On the projected argument, add annotations to the text with new information that students suggest. Have students do the same on their copies.
  - **Read aloud the second sentence (after the claim).** Say, "I remember that after this sentence, there is another sentence that helps explain why exercise is important."
  - **Read aloud the third sentence (after the claim).** Ask students if this is enough information, or if the argument could be made stronger with more thinking about this sentence. Add any new ideas that students suggest.
- 5. Follow the same procedure with the next two sentences.** Stop and add students' thinking about each sentence.
  - 6. Read aloud the final sentence.** Explain that this is a summary statement that some arguments and other kinds of writing have at the end. It doesn't contain new information.
  - 7. Explain next steps.** Explain that pairs will now practice listening to arguments and identifying where they are stronger and weaker. Each pair will get two arguments.
    - The first partner will read the first argument aloud twice while the other partner listens.
    - The second time the argument is read, the reader will read slowly, pausing after each sentence.
    - The listener will think about the questions on the board and explain which parts of the argument they think need more explanation and which parts are fine as they are.
    - Students will then switch roles for the second argument.
  - 8. Distribute Argument 2: Video Games and Argument 3: Video Games.** Distribute one copy of each argument to each pair. Circulate and offer support as needed while students complete the activity.
  - 9. Whole-class share.** Have several pairs share their thoughts on where each argument was weaker and stronger. As a class, discuss how difficult or easy it was to listen to and critique the arguments.
  - 10. Summarize thinking about reasoning.** Ask several students to share their thinking about why and how reasoning is important in oral argumentation.

# Responsive Mini-Lesson B

## Materials and Teaching Considerations

### For the class

- Projection: Comparing Broken Vase Arguments A and B
- Projection: Background for Student Argumentation: Running a Race
- Projection and Copymaster: Transcript of Student Argumentation: Running a Race
- Video/Audio: Student Argumentation: Partner Discussion (<http://www.argumentationtoolkit.org/resources.html>)

### For each student

- 1 copy of Transcript of Student Argumentation: Running a Race

**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. In addition, each introduction is teacher-led, while the lesson that follows is more student-centered.

## Getting Ready

### 1. Decide how to present the argumentation.

During the lesson, you will project Comparing Broken Vase Arguments A and B, Background for Student Argumentation: Running a Race, and Transcript of Student Argumentation: Running a Race. The lesson is written as if these resources will be projected.

### 2. Make copies of Transcript of Student Argumentation: Running a Race. Make enough copies so each student gets a copy to read and annotate. (Note: This transcript is also a projection.)

### 3. Review video/audio of Student Argumentation: Partner Discussion. During the lesson, you will play only the audio portion of the video. Students will not watch the video images but only listen to the partner discussion.

- Bookmark the URL so you can easily access the video/audio during the lesson (<http://www.argumentationtoolkit.org/resources.html>).

### 4. Write the following discussion prompts on the board:

- What are some examples of the students in this discussion making their reasoning clear to each other?
- What are some examples of the students in this discussion not making their reasoning clear to each other?
- Which student do you feel makes the most convincing argument? Why?

## Introduction

### 1. Review what makes a convincing argument. Focus students on the idea that making their reasoning clear is an especially important aspect of making a convincing argument.

- Explain that making reasoning clear involves explicitly explaining how several pieces of evidence are connected and/or how evidence supports a claim.

### 2. Project and review Comparing Broken Vase Arguments A and B. If you taught

## Responsive Mini-Lesson B

Lesson A, remind students that they saw these arguments before.

- **Read aloud Argument A.** Discuss the fact that the argument is not very clear and convincing because important thinking that should connect the ideas is missing.
- **Read aloud Argument B.** Ask students to explain why this argument is better/more convincing. Try to help students see that it isn't simply because Argument B is longer; it is because the ideas in Argument B are connected, and the thinking is clear.

3. **Discuss reasoning in this lesson (and beyond).** Explain that you would like students to practice being thoughtful about making their reasoning clear during the remainder of the lesson. Practicing this will help them become better at this important aspect of oral argumentation in the future.

### Lesson

1. **Introduce context of the lesson.** Let students know that they will be reading and listening to examples of oral argumentation by other middle school students. To do this, they will first be given something called a transcript. Say, **“A transcript is a written record of people speaking. In a few minutes, I will give you a transcript from an activity when a pair of middle school students were participating in oral argumentation in their science class. These are the actual words the students said. Later, you will also be able to listen to what these students said when I play audio from their discussion.”**
2. **Project Background for Student Argumentation: Running a Race.** Read aloud the explanation about the arguments that the students in the audio will be making. Point out the evidence they will be considering.
3. **Explain next steps.** Let students know that when they get the transcript, they will read and annotate it independently. Say, **“As you read, I would like you to make annotations when you find examples of students working to make their reasoning clear to each other. I would also like you to make notes where you think students did not do this. After everyone has read the transcript and listened to the audio, we will discuss what you found.”**
4. **Distribute copies of Transcript of Student Argumentation: Running a Race and have students read and annotate independently.** Distribute one copy of the transcript to each student and have them work independently.
5. **Introduce the audio of Student Argumentation: Partner Discussion.** Explain that since students are working on listening to, participating in, and improving upon their oral argumentation skills, you will now play the oral version of the transcript. Say, **“I asked you to read the transcript first because when you read, you can do so at your own speed and process what you are reading more carefully. You will find that this is much more difficult to do with oral argumentation. This is one reason that oral argumentation can be difficult to work on! As you listen, use the transcript to keep up with these students. Add any new thoughts you have (to the transcript) as you listen.”**
6. **Play the audio of Student Argumentation: Partner Discussion.** Encourage students to take more notes as they listen.

## Responsive Mini-Lesson B

7. **Draw students' attention to the prompts on the board.** Let students know that they will work with a partner to discuss what they read and heard. They will use these prompts and their own annotations to guide their discussions.
8. **Pairs discuss the transcript and audio of students' argumentation.** Circulate as students share and discuss their annotations with a partner, using the prompts from the board.
9. **Have pairs share their ideas with the class.** Refer to the questions on the board as you discuss. Prompt pairs to point to evidence in the transcript to support their ideas. You might replay key sections of the audio as students discuss those sections. Students should note that Student A more consistently reasoned about the evidence (see Sections 5, 9, and 11).
10. **Prompt students to reflect on oral argumentation.**
  - Ask students to discuss whether the written transcript or the oral version was easier to follow and think about and why.
  - Explain that one reason to practice getting better at reasoning with a written transcript is because oral argumentation can be more difficult to follow and think about; practicing with a paper version can help make oral argumentation better.
11. **Summarize students' thinking about reasoning.** Remind students that the main purpose of all argumentation is to make your thinking clear and convincing and that much of this work is done through making your reasoning clear.



## Why These Mini-Lessons Matter

These mini-lessons focus on making a key purpose of argumentation—being convincing—explicit and then provide examples and opportunities for students to practice being convincing while engaging with peers. Research has shown that students can struggle with scientific argumentation because they have not yet grasped the goals and norms of oral argumentation and how it differs from other modes of classroom talk (Berland and Reiser 2011, McNeill 2011). If argumentation is still new or unfamiliar to students, examples and practice that make the purpose and process of argumentation explicit can be helpful. The use of everyday examples also builds on students' prior knowledge (Bricker and Bell 2007) and helps clarify how to use those resources in science argumentation. Further, everyday examples ensure that challenges with science content do not prevent students from grasping and engaging in the process of making an argument.

## Resources

Berland, L. K., and Reiser, B. J. (2011). Classroom communities' adaptations of the practice of scientific argumentation. *Science Education* 95(2): 191–216.

Bricker, L., and Bell, P. (2007). "Um . . . since I argue for fun, I don't remember what I argue about": Using children's argumentation across social contexts to inform science instruction. In *National Association of Research in Science Teaching*, Annual Meeting, New Orleans, LA.

McNeill, K. L. (2011). Elementary students' views of explanation, argumentation, and evidence, and their abilities to construct arguments over the school year. *Journal of Research in Science Teaching* 48(7): 793–823.



The Learning  
Design Group



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## Broken Vase Argument A

One of my sisters just broke a vase in our living room! I went in and found a broken vase on the floor and spilled water and flowers everywhere. There was also a soccer ball near the vase.

# Comparing Broken Vase Arguments A and B

## Argument A

One of my sisters just broke a vase in our living room! I went in and found a broken vase on the floor and spilled water and flowers everywhere. There was also a soccer ball near the vase.

## Argument B

One of my sisters just broke a vase in our living room! I went in and found a broken vase on the floor and spilled water and flowers everywhere. Last time I went into the living room, the vase was sitting on the table and was not broken. When I went in just now, the water was still in a puddle and wasn't soaked into the carpet, so I know the accident just happened. There was also a soccer ball near the vase. Both of my sisters love soccer and love to kick soccer balls inside the house. I think one of my sisters kicked the ball, and it hit the vase on the table, knocked it off, and broke it.

## **Argument 1: Exercise and School**

**Question: Does exercise affect how you do in school?**

Exercising regularly helps me do better in school. First, exercise helps me sleep better at night. Second, when I exercise, I feel more relaxed. Since I'm less stressed after I exercise, I'm less distracted and can focus better in class. Third, I have more energy after I exercise. Finally, I feel more mentally alert when I exercise. Getting enough regular exercise is a great way to improve your performance in school.

## Argument 2: Video Games

**Question: Does playing video games make you smarter?**

My claim is that playing video games does not make you smarter. First, some studies show that if kids play a lot of video games, it can be harder for them to pay attention in school. This shows that playing video games can make it harder to learn, and learning is one important way for you to get smarter. Second, playing video games also means that you aren't doing other important things outside of school. Finally, playing video games makes you only think about fantasy stuff.

## Argument 3: Video Games

**Question: Does playing video games make you smarter?**

My claim is that you definitely should play video games to get smarter. First, when you play video games, you can develop better hand-and-eye coordination. Second, at one school, the third-grade students who played more than two hours of video games a day got higher grades in math. Doing well in math shows that the kids who played video games more often were getting smarter. Third, a lot of video games teach important and useful information about the world.

## Comparing Broken Vase Arguments A and B

### Argument A

One of my sisters just broke a vase in our living room! I went in and found a broken vase on the floor and spilled water and flowers everywhere. There was also a soccer ball near the vase.

### Argument B

One of my sisters just broke a vase in our living room! I went in and found a broken vase on the floor and spilled water and flowers everywhere. Last time I went into the living room, the vase was sitting on the table and was not broken. When I went in just now, the water was still in a puddle and wasn't soaked into the carpet, so I know the accident just happened. There was also a soccer ball near the vase. Both of my sisters love soccer and love to kick soccer balls inside the house. I think one of my sisters kicked the ball, and it hit the vase on the table, knocked it off, and broke it.

## Background for Student Argumentation: Running a Race

- Two students are discussing two runners who ran a race. Each runner prepared differently for the race.
- One runner claimed that **eating a lot of food before exercising will give you more energy** than eating small amounts of food while you exercise.
- The other runner claimed that **eating small amounts of food more frequently during exercise will give you more energy** than eating a lot of food before you exercise.
- The students were given information about what happened to each runner's energy level during the race.
- The students are trying to make an argument to support one of the runner's claims.



## Transcript of Student Argumentation: Running a Race

1 **Student A:** Well, I personally think that Desiree's claim is the smarter one.

2 **Student B:** Desiree's is not the smarter one, Abdi's is.

3 **Student A:** How?

4 **Student B:** Well, if you eat a lot before you run, you just, ya know, run faster.

5 **Student A:** Yeah, but what we've seen is that after the 3-minute mark, his energy starts to drop insanely fast.

6 **Student B:** Yeah, but if you eat a lot, maybe more than Abdi did, you'll make it to the end, and he got past half way.

7 **Student A:** Past half way, yeah, but Desiree still went the whole way, keeping his energy up around 90 percent.

8 **Student B:** Well, Desiree. Hmm. I still think it's Abdi's, though, because if you eat a lot before you go to run, it will, like, help you be faster and stronger.

9 **Student A:** Yeah, but your body's gotta digest, and you don't want to push your body that hard when, you know, if you've eaten this big meal, and then you just start going. You could have a heart attack.

10 **Student B:** Then why is Desiree's [claim] right?

11 **Student A:** Well, it seems to me that every time he eats, every 30 seconds of his 5-minute very active run, the glucose and the starch go into his digestive system, and it goes into his bloodstream, then goes into his cells, and that allows carbon dioxide to escape out of his mouth, and it allows him to run faster and to keep his energy up. It allows him to run faster without him dropping, without him crashing, without him burning up in flames and dying.