

Responsive Mini-Lessons: Reasoning—Not 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 Not Descriptive Level Make Sense for Your Class?

The suggestion to provide a Responsive Mini-Lesson for the Not 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 but do not explain how the evidence itself 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 Not 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

- Provide students with an understanding of why reasoning is an important component of convincing argumentation.
- Provide students with an opportunity to practice providing reasoning in written and oral formats.

Responsive Mini-Lesson A

Materials and Teaching Considerations

For the class

- Projection: Vegetable Argument A
- Projection: Vegetable Argument B
- Projection: Comparing Arguments About Vegetables
- Copymaster: Everyday Arguments Cards
- scissors or paper cutter*
- paper clips*

*teacher provided

For each pair of students

- 1 set of Everyday Arguments Cards, clipped together (2 cards/set)

Time frame: 20–30 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 vegetable arguments.** During the introduction, you will present Vegetable Argument A, Vegetable Argument B, and Comparing Arguments About Vegetables. The lesson is written as if these resources will be projected.
 - Alternatively, you can choose to make enough copies so each pair of students receives one copy of each.
 - If you do not have a color printer, you can make black-and-white copies for students and project the color versions so students can see the blue text additions.
- 2. Write the following phrases on the board:**
 - This is important because . . .
 - This matters because . . .
 - This supports the claim because . . .
- 3. Make copies of Everyday Arguments Cards.** Make enough copies of this card set so each pair of students gets one set

of cards. There are two cards/set. Clip together each set.

Introduction

- 1. Project Vegetable Argument A.** Read the argument aloud. Ask students whether or not this argument is convincing and would make them believe the claim that vegetables are good for them.
- 2. Discuss weaknesses in Argument A.** Point out that Vegetable Argument A doesn't really tell you *why* or *how* fiber or vitamin C are good for you. It just states that these components, which are found in vegetables, are good for you. Remind students that a convincing argument is one that is more thorough than this. A convincing argument attempts to explain *why* the evidence is important and *how* it supports the claim being made.
- 3. Project Vegetable Argument B.** Read this argument aloud. Discuss the addition of the blue sections of text. Ask students to explain how or why these sections help to

Responsive Mini-Lesson A

make this a more complete and convincing argument. [The addition of the blue text provides an understanding of how fiber and vitamin C are beneficial to a person's health. This helps to better and more thoroughly explain why the information about fiber and vitamin C are included in this argument.]

- 4. Project Comparing Arguments About Vegetables.** Compare and discuss the differences between Arguments A and B. Point out that Vegetable Argument B is essentially the same argument as Vegetable Argument A but with additional information that explains why the evidence is important. With that information, it becomes a much stronger and more convincing argument.
- 5. Make a connection to oral argumentation in the classroom.**
 - Explain that students are working toward presenting ideas and thinking in a more thorough and convincing way—more like Argument B than Argument A. Point out that although many people present simple arguments like the one presented in Argument A, in this class, they will work to create more complex and convincing arguments.
 - Acknowledge that sometimes in oral argumentation, when students are working together to share thinking or come up with answers, they can simply add new information to the conversation without providing a complete, thoroughly reasoned argument every time. However, make sure students understand that you want them to become aware of and

- make it a habit to offer these kinds of connecting ideas whenever possible.

Lesson

- 1. Introduce the purpose of 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. However, the goal of this lesson is to specifically work on students' oral argumentation skills. Therefore, this lesson will have two components: First, students will work with short, written arguments; later in the lesson, students will practice oral argumentation.
- 2. Preview the first activity.** Let students know that they will be working in pairs. Each pair will receive two short, written arguments without explanations of why the evidence is important and supportive of the claims—similar to Vegetable Argument A.
 - Each student will annotate one argument by adding important connective thinking.
 - Next, partners will read both versions of their arguments—the original argument and the annotated version—to each other.
 - Let students know that the goal is to practice making more complete and convincing arguments and for partners to hear and appreciate the difference between the two arguments when both are read aloud.
- 3. Explain that these arguments will be everyday arguments.** Explain that it is important for students to work on arguments with which they have some knowledge so they can easily participate

Responsive Mini-Lesson A

and add their own thinking to the argument. Therefore, you will be giving them arguments for which students won't 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.

4. **Point out the phrases you wrote on the board.** Let students know that if they are having trouble thinking about information to add to make the argument more convincing, they can ask themselves these questions to prompt their thinking. Let students know that they don't have to write these phrases into their arguments; the phrases can help prompt thinking about why the evidence was included.
5. **Distribute the Everyday Arguments Cards and have pairs work independently.** Distribute one set of cards to each pair of students. Have each student work on one argument. Circulate and offer support as needed.
6. **Review the next steps.** When all students have finished adding annotations to their arguments, explain that partners will now read their arguments aloud to each other.
 - Each student can read the original version and the revised version in any order they like. Let students know that one partner will read both versions of her argument, and then both partners will discuss the arguments. Then, the other partner will read both versions of of his argument, and both partners will discuss the arguments.

- Remind students to listen carefully to their partners so they will be able to describe why one argument is stronger and more convincing than the other.

7. **Partners read and discuss their arguments.** Have partners read their arguments to each other and discuss which of the two versions was more convincing and why.
8. **Whole-class share.** Ask a few students to explain why an argument is more convincing when more connections and reasoned thinking are added.

Responsive Mini-Lesson B

Materials and Teaching Considerations

For the class

- Projection: Comparing Arguments About Vegetables
- Projection: Example: Lightning Round Argument
- Teacher Reference: Example: Lightning Round Argument (with additional text)
- Copymaster: Lightning Round Argument Cards
- scissors or paper cutter*
- paper clips*

*teacher provided

For each pair of students

- 1 set of Lightning Round Argument Cards, clipped together (6 cards/set)

Time frame: 20–30 minutes

Teaching Considerations

Most lessons will begin with an introduction followed by what is designated as the lesson itself. The introduction is conceived of as 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 resources.

The lesson is written as if Comparing Arguments About Vegetables and Example: Lightning Round Argument will be projected.

2. Review Example: Lightning Round Argument and Example: Lightning Round Argument (with possible improvements).

During the lesson, you will project the example argument and then reread the argument while adding connective thinking.

- You can use the provided argument with possible improvements as a reference, or you can prepare to use your own connective thinking.
- If you choose to use the argument with possible improvements, you can project it for students, if you like.

3. Make copies of the Lightning Round Argument Cards. Make enough copies of this card set so each pair of students gets

one set of cards. There are six cards/set. Clip together each set.

4. Optional: Prepare to teach Lesson A, Introduction. If you did not teach Lesson A, we suggest that you teach the Introduction section in full before moving on to the rest of Lesson B.

Introduction

1. **Project Comparing Arguments About Vegetables and review thinking from Lesson A.** Have students explain what makes Argument B more convincing than Argument A.
2. **Make connections between oral and written arguments.** Remind students that creating convincing arguments orally and in writing involves many similar ways of thinking; both kinds of argumentation are more convincing when someone thoroughly explains how different pieces of evidence can be connected to one another and how the evidence connects to the claim.

Responsive Mini-Lesson B

Lesson

1. Introduce Lightning Round Argument Game.

Let students know that each pair of students will get one set of six Lightning Round Argument Cards.

- Students will place the cards face down between them. The first partner will take a turn picking a card and quickly reading it aloud to the other partner
- Next, the same partner will reread the argument, but this time will add connected and reasoned thinking to make the argument stronger and more convincing.
- Partners then discuss other possible improvements for the argument that was just read before the second partner picks the next card and quickly reads it aloud, beginning the process again.
- Partners should try to work as quickly as possible so their thinking is spontaneous. The goal is for students to try to think on their feet to practice creating convincing oral arguments.

2. Project Example: Lightning Round Argument.

Let students know that you will use this argument as an example of how to play the Lightning Round Argument Game. Read aloud the example argument. Then reread the argument while adding your own connective thinking.

- **Refer to and/or project Example: Lightning Round Argument (with possible improvements).** You can refer to and/or project the provided examples of connective thinking, or you can use your own thinking to add reasoning to the argument.

3. Explain expectations of the Lightning Round Argument Game.

Remind students that their responses don't need to be perfect. The activity is meant to push them to think on their feet and supply connections between evidence and claims orally.

4. Distribute Lightning Round Argument Cards.

Distribute one set of cards to each pair of students.

5. Students' play the Lightning Round Argument Game.

As you circulate, offer support as needed. For example, if some students need more support, you may want to provide the following prompts as you:

- I think this is important because . . .
- I think this matters because . . .

6. Whole-class share.

Ask students to share by using the following prompts:

- What was difficult/easy about this activity?
- Were the revised arguments better than the original ones? Why or why not? If they weren't better, what could you do to make them better?

As students share their thinking, write notes about positive take-aways for oral argumentation. Consider posting these so students can refer to them when they participate in future oral argumentation experiences.

7. Wrap up the lesson.

Let students know that the experiences they had and the thinking they did can help prepare them to participate more fully in future oral-argumentation activities in class.

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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Vegetable Argument A

Vegetables are good for you. They have fiber and vitamins, such as vitamin C, in them. You should eat vegetables every day.



Vegetable Argument B

Vegetables are good for you. They have fiber in them. Scientists have found that fiber can reduce the risk of heart disease, obesity, and Type 2 Diabetes. Vegetables also have important vitamins, such as vitamin C, in them. Vitamin C has been shown to heal wounds and may even help protect us against colds and allergies. Since vitamins have so many health benefits, you should eat vegetables every day.



Comparing Arguments About Vegetables

Argument A

Vegetables are good for you. They have fiber and vitamins, such as vitamin C, in them. You should eat vegetables every day.

Argument B

Vegetables are good for you. They have fiber in them. Scientists have found that fiber can reduce the risk of heart disease, obesity, and Type 2 Diabetes. Vegetables also have important vitamins, such as vitamin C, in them. Vitamin C has been shown to heal wounds and may even help protect us against colds and allergies. Since vitamins have so many health benefits, you should eat vegetables every day.

Everyday Argument A

Pencils work best for doing work at school.

You can erase with pencils. Pencils last a long time. Pencils are cheap to buy.

Lesson A Copymaster: Everyday Arguments Cards

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Everyday Argument B

Riding a bike is a great thing to do. Bike riding is exercise. Riding a bike is a fast way to get places. Riding a bike is better than driving.

Lesson A Copymaster: Everyday Arguments Cards

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Comparing Arguments About Vegetables

Argument A

Vegetables are good for you. They have fiber and vitamins, such as vitamin C, in them. You should eat vegetables every day.

Argument B

Vegetables are good for you. They have fiber in them. Scientists have found that fiber can reduce the risk of heart disease, obesity, and Type 2 Diabetes. Vegetables also have important vitamins, such as vitamin C, in them. Vitamin C has been shown to heal wounds and may even help protect us against colds and allergies. Since vitamins have so many health benefits, you should eat vegetables every day.

Example: Lightning Round Argument

School is an important institution of society. Students learn about different subjects in school. Students learn to work together in school. Students have a place to make friendships.

Example: Lightning Round Argument (with possible improvements)

School is an important institution of society. Students learn about different subjects in school, such as math, science, and history. This is important because learning these subjects will make students more prepared to be a part of society and will get them ready for college and jobs in the future. Students learn to work together in school. It is important for people in society to find ways to communicate and get along, and school is an important place to work on these skills. Students have a place to make friendships. Friendships are an extremely important aspect of life. Since students see one another every day when they are in school, they have a place to interact with others and start and keep friendships. This would be more difficult to do if students didn't come to school each day. School provides many important things for young people in our society.

Lightening Round Argument Cards

1

Dogs are great pets. They are friendly. Dogs can protect you. They are easy to care for.

Lightening Round Argument Cards

2

Fish are great pets. They are quiet. They are easy to take care of. You can have many different kinds of fish in one tank.

Lightening Round Argument Cards

3

Cats are great pets. They are calm. They are easy to take care of. They are interesting.

Lightening Round Argument Cards

4

Chickens are great pets. They lay eggs. They are interesting to watch. They don't need a lot of attention.

Lightening Round Argument Cards

5

Sandals are great shoes. They don't cover your whole foot. They are simple. They are perfect for some activities.

Lightening Round Argument Cards

6

Sneakers (athletic shoes) are great shoes. They cover your whole foot. They are strong. They are perfect for some activities.