

# *The Five Practices in Practice* **at a Glance**

Candid quotes from  
been-there teachers  
illuminate the topic  
of each chapter.

“ I’ve learned a lot about myself as a teacher. For example, when you’re trying to move a student forward toward the goal and they’re struggling, how do you get them there without giving them the answer? Focusing on the assessing and advancing questions, figuring out what they know, and then letting them think and kind of grapple with the idea—that has really been the biggest shift in my mind. ”

—MICHELLE MUSUMECI, EIGHTH-GRADE TEACHER

**Pause and Consider** moments invite teachers to reflect on and make connections to their own practice.



## PAUSE AND CONSIDER

How do you track students' ideas during instruction?

How do you circulate among your students as they are working?

What techniques might help you more effectively track student thinking in your classroom?

### TEACHING TAKEAWAY

You can often gauge the effectiveness of advancing questions by noticing whether students immediately begin to explore it!

explore, or reconsider ideas about the task. Mrs. Mossot

*I'm hoping that after I pose the question, they have to: about it, or do a little bit of work, or have a little conference with other students they're working with where I can go in, and see what the other groups are doing, and then come back to the*

This ability for students to pursue an advancing question as you pose advancing questions, you will want to gauge their reaction. Do they begin working? Can you see them taking something over? Do they ask each other questions? Mrs. S explained that when "they kind of stop and think, there's kids that have the wheels turning in their head and they might go on and on. That's when I know that they were ready for that [advancing

Of course, what is most essential is that your advancing questions encourage students to move forward in their thinking. After you pose an advancing question, you will want to give students time to work on it. You want to check back in with the group to see how they are doing. Ms. Musumeci explained that in her experience,

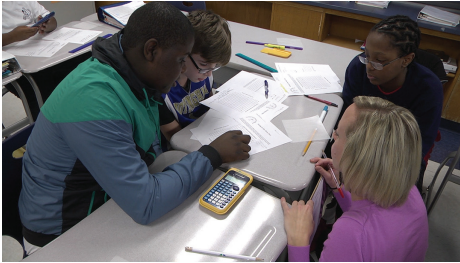
**Teaching Takeaways** provide on-your-feet support for teachers, so they can jump into implementing the strategies discussed.

Video showcase panels highlight the rich film footage available for each topic and include related questions for consideration.



## Analyzing the Work of Teaching 4.7

*Following Up With Students—Part Two*



Video Clip 4.7

Mrs. Mossotti visits Nietzsche, Ejub, and AJ on two separate occasions while they are working on the State Fair task.

As you watch Video Clip 4.7, consider the following questions:

1. What does Mrs. Mossotti learn about her students' understanding during her first visit to the group?
2. What question does the teacher leave students to pursue?
3. When the teacher checks in with the group later (her second visit), what progress have students made? What does she leave them to work on?



Videos may also be accessed at  
[resources.corwin.com/5practices-middleschool](https://resources.corwin.com/5practices-middleschool)

● ● ● ● ● MONITORING

### Analyzing the Work of Teaching 4.8

*Holding All Students Accountable*

In the Buying Batteries vignette, you will see Mr. Quinn's interactions with one small group in his class that consists of Sophia, Camila, and Destiny.

As you read the vignette, consider the following questions:

1. What aspects of monitoring do you see Mr. Quinn engage in as he interacts with Sophia, Camila, and Destiny?
2. What does Mr. Quinn do to ensure that all three students are involved in making progress on the task?

#### Buying Batteries Vignette

1 Mr. Q: So tell me what your group came up with.  
 2 Sophia: We said that it's proportional.  
 3 Mr. Q: What is proportional?  
 4 Sophia: The relationship between the price and the number of batteries.  
 5 Mr. Q: Why do you think it's proportional?  
 6 Sophia: It goes up in a pattern.  
 7 Mr. Q: Do you agree with her? (Looking at Destiny and Camila who are both nodding their heads.)  
 8 Mr. Q: Destiny, what is the pattern that Sophia is referring to?  
 9 Destiny: You just keep adding the same amount on to batteries and price.  
 10 Mr. Q: What do you mean that you keep "adding the same amount" ?  
 11 Destiny: You always add 6 to the batteries and 3 to the price (pointing to her paper that shows the addition)

Number of Batteries	6	12	18	24	30
Price (in dollars)	3	6	9	12	15

$+6$     $+6$     $+6$     $+6$   
 $+3$     $+3$     $+3$     $+3$

15 Mr. Q: What about the last column? How does it fit the pattern? Camila?  
 16 Camila: See. They skipped 24 batteries for \$12.00 that would come after 18 batteries for \$9.00, so we just filled that in. Then 30 batteries for \$15.00 would come next. So it still works.  
 17 Mr. Q: Can you just fill in numbers like that? Sophia?

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21 Sophia? I think so—it still fits the pattern. They just left one out of the table.  
 22 Mr. Q: Suppose I had 50 batteries for \$25.00. Is this relationship the same as the one in your table? I want the three of you to talk about it and I will check back in with you in a few minutes.  
 23  
 24  
 25  
 26 (Mr. Q makes note of the question he posed and leaves students to pursue it while he talks with other groups. He returns to check their progress.)  
 27  
 28  
 29 Mr. Q: So what did you decide? Destiny?  
 30 Destiny: We decided that 50 batteries for \$25.00 doesn't fit the pattern because you could never get to 50 and 25 by adding 6 to the number of batteries and 3 to the cost.  
 31  
 32 Mr. Q: How did you determine that it didn't fit the pattern? Sophia?  
 33 Sophia: We just extended the table. We got 48 for \$24.00 and then 54 for \$27.00. So 50 for \$25.00 will never fit.  
 34 Mr. Q: Okay. You have identified a pattern of repeatedly adding 6 to the number of batteries and adding \$3.00 to the cost. Now, I want you to see if you can find a relationship between the number of batteries and the cost. I will be back.  
 35  
 36  
 37  
 38  
 39  
 40  
 41 (Mr. Q makes note of what he asked students to work on then proceeds to talk with other groups before returning to check their progress.)  
 42  
 43  
 44 Mr. Q: So what did you find? Camila?  
 45 Camila: Well, we think that the cost is  $\frac{5}{2}$  the number of batteries.  
 46 Sophia: Or the batteries are 2 times the cost.  
 47 Mr. Q: Can you show me what you mean using the table?  
 48 (Sophia and Camila each repeat their explanation, while pointing to columns in the table that show the relationship.)  
 49 Mr. Q: So now you have identified another pattern—one that connects the batteries and the cost. This is an important relationship. I want you to write a ratio that represents the number of batteries to the cost and then see if the ratio describes all the entries in your table. I may not have time to check in with you again, but I expect you to keep working on this.  
 50  
 51  
 52  
 53  
 54  
 55 (Mr. Q makes note of the final challenge posed to the group. He did not have time to return the group, but he felt that they had made sufficient progress to benefit from the whole group discussion.)  
 56  
 57  
 58

#### Holding All Students Accountable—Analysis

Mr. Quinn's three interactions with Sophia, Camila, and Destiny highlight many of the aspects of monitoring that we have discussed in this chapter. He begins each visit to the group by offering an open invitation to students to describe their work (Line 1: "Tell me what you came up with; Line 29: "What did you decide?; Line 44: "What did you find?"). Following the students' explanations, he asks a series of assessing questions (Lines 3, 5, 9,

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Illustrative vignettes and examples demonstrate real-world applications of the concepts discussed in each chapter.

● ● ● ● ● ANTICIPATING STUDENT RESPONSES

In fact, she mentioned that some students might try to divide the cost by the number of tickets to find the cost per ticket, noting "this would not be correct at all, because they're going to find three different rates for tickets" (Solution B, Figure 3.2).

Figure 3.2 • Anticipated solutions to the State Fair Task generated by Mrs. Mossotti and her colleagues

**A. Make a table with values from the graph**

Number of Tickets	Total Spent
1	\$8.50
8	\$12.00
10	\$13.00

Student creates a table using the information about the three points on the graph.

**C. Determine the price per two tickets**  
 Student uses the points (8, 12) and (10, 13) to determine that two tickets have a cost of \$1.00.

**E. Determine price per ticket at \$0c**

Number of Tickets	Total Spent
0	\$8.00
1	\$8.50
2	\$9.00
3	\$9.50
4	\$10.00
5	\$10.50
6	\$11.00
7	\$11.50
8	\$12.00
9	\$12.50
10	\$13.00

Student determines that the total amount spent is calculated by taking \$8.00 and then repeatedly adding \$0c, depending on the number of tickets purchased.

**B. Determine different unit rates for tickets prices**

$$\frac{12.00}{8} = 1.50 \quad \frac{13.00}{10} = 1.30 \quad \frac{8.50}{1} = 8.50$$

Student divides the total spent by the ticket quantity for each point on the graph and comes up with three different "unit rates."

**D. Connect three points with a line to determine entry fee and ticket price**

Money Spent at the Fairbury State Fair

Student connects the three points on the graph with a line and sees that on the y-axis the value is \$8.00 and determines that it must cost \$8.00 to enter the fair without buying any tickets. Since it costs \$8.50 for a ticket, this means it must cost \$0c per ticket. Student sees that the line rises half a unit on the y-axis for every 1 unit on the x-axis.

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An in-depth **Linking the Five Practices to Your Own Instruction** feature helps teachers move even deeper into implementation, providing detailed support and additional reflective opportunities.

## MONITORING

### Linking the Five Practices to Your Own Instruction

#### MONITORING

It is now time to teach the lesson you planned in Chapters 2 and 3! (Or if you prefer, select another lesson. Just make sure that you have engaged in Practice 0 and have anticipated student responses and questions before you begin.) We encourage you to video record the lesson so that you can reflect back on what occurred during the lesson.

1. Before teaching the lesson, consider how you are going to make sure you visit every group and remember the questions you leave groups to pursue. Also, consider whether there are any specific instructions you want to give students regarding your expectations for how you expect them to work in their groups.
2. As you teach the lesson, use your monitoring chart to keep track of the strategies students are using. Be sure you are checking in with every group and returning to groups to see if they are making good progress.
3. Following the lesson, use these questions to guide reflection on your monitoring:
  - Did you interact with each group in the class? If not, what could you do differently to ensure that you have a chance to check in with all of your students? Did you return to groups when you said you would to check on their progress?
  - To what extent did students use the strategies you had anticipated? What was unexpected?
  - To what extent were the assessing questions you anticipated in planning useful in your interactions with students? Did they help you make students' thinking clear and public?
  - To what extent were the advancing questions you anticipated in planning useful in your interactions with students? Did they help students make progress on the task?
  - To what extent were you able to involve all members of a group in the conversation? What might you do differently in the future to hear the voices of more students?
4. What did you learn about students' understanding of mathematics as a result of teaching the lesson?
5. What lessons have you learned about monitoring that will help you in planning and enacting the next lesson you teach?


Figure 2.6 • The Pizza Party task

**Pizza Party**

You ordered pizza for your birthday party. When the party was over you still had  $4\frac{2}{6}$  pizzas left over. Your mother decided to freeze the remaining pizza. She put  $\frac{2}{3}$  of a pizza (one serving) in each freezer bag.

- How many servings would your mother be able to freeze?
- How much more pizza does your mother need to make another serving?

*Draw a picture, build a model, construct a number line, or make a table to explain your solution.*



Source: Task adapted from Nolan, Dixon, Roy & Andreasen, 2016.  
Image Source: bonetta/iStock.com

During the discussion with her colleagues regarding her goals and task, Mrs. Saroney indicated that this would be the first time that students

Clearly designed tasks promote mathematical reasoning and problem solving.

Figure 4.2 • Challenges associated with monitoring

CHALLENGE	DESCRIPTION
Trying to understand what students are thinking	Students do not always articulate their thinking clearly. It can be quite demanding for teachers, in the moment, to figure out what a student means or is trying to say. This requires teachers to listen carefully to what students are saying and to ask questions that help them better explain what they are thinking.
Keeping track of group progress—which groups you visited and what you left them to work on	As teachers are running from group to group, providing support, they need to be able to keep track of what each group is doing and what they left students to work on. Also, it is important for a teacher to return to a group to determine whether the advancing question given to them helped them make progress.
Involving all members of a group	All individuals in the group need to be challenged to answer assessing and advancing questions. For individuals to benefit from the thinking of their peers, they need to be held accountable for listening to and adding on, repeating and summarizing what others are saying.

Challenge and Description charts distill and demystify some of the common issues teachers encounter when teaching the concepts at hand.

What It Takes/Key Questions charts break down the critical components of the practice and explain what it takes to succeed and the questions you need to ask yourself to stay on track.

students' thinking forward (advancing questions). Figure 4.1 highlights the key components of this practice.

Figure 4.1 • Key questions that support the practice of monitoring students' responses

WHAT IT TAKES	KEY QUESTIONS
Tracking student thinking	How will you keep track of students' responses during the lesson?
	How will you ensure that you check in with all students during the lesson?
Assessing student thinking	Are your assessing questions meeting students where they are?
	Are your assessing questions making student thinking visible?
Advancing student thinking	Are your advancing questions driven by your lesson goals?
	Are students able to pursue advancing questions on their own?
	Are your advancing questions helping students to progress?