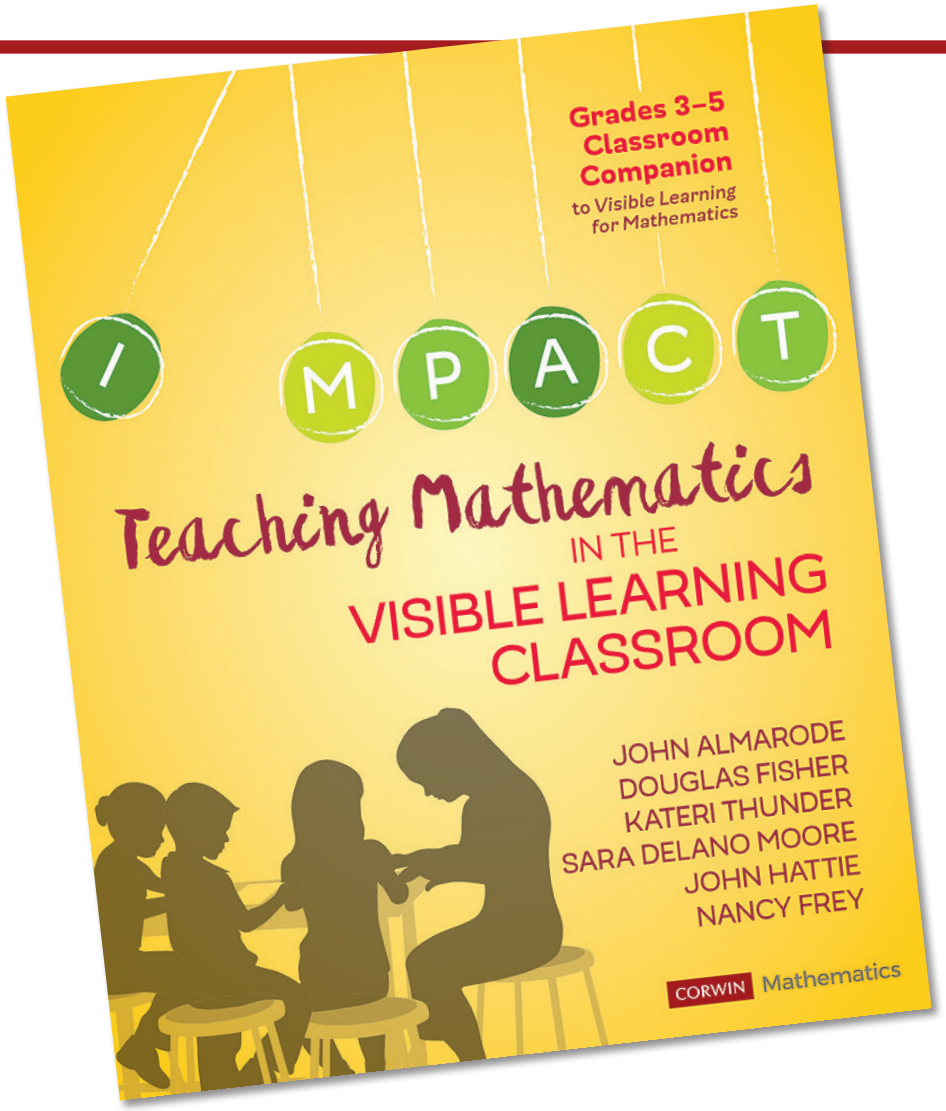

Thank you

FOR YOUR INTEREST IN CORWIN

Please enjoy this complimentary excerpt from *Teaching Mathematics in the Visible Learning Classroom, Grades 3-5* by John Almarode, Douglas Fisher, Kateri Thunder, Sara Delano Moore, John Hattie, and Nancy Frey. The Peer-Assisted Reflection helps you develop strategies for process feedback which is critical as learners explore the why and the how of specific mathematics content.

LEARN MORE about this title, including Features, Table of Contents and Reviews.

Peer-Assisted Reflection (PAR) for Mastery

As learners begin to develop proficiency with specific content, ideas, and terms, the feedback should increasingly shift to process feedback. **Process feedback** is critical as learners explore the *why* and the *how* of specific mathematics content. In their initial assessment of mastery, learners received and assimilated task feedback into their work to develop a deeper understanding of procedures, concepts, and applications. To move learners beyond what is simply right or wrong, example or non-example, they must receive and incorporate feedback that focuses on the processes or strategies associated with accomplishing the specific task. Returning to Ms. Showker's classroom, she may not indicate whether a particular response is correct or incorrect, but simply ask, "Why do you believe that this is the best way to represent your data? What information can you infer from the graph? Do you have any data that would allow you to verify these predictions?"

Process feedback focuses on the strategies needed to perform the task.

Whether from the teacher or peers, learners should receive feedback on their thinking, not just the accuracy of their response. For example, teachers might engage students in further dialogue about the use of specific strategies to solve a particular problem. Again, this feedback can come from the teacher or their peers. For example, the figure below shows an example of peer-assisted reflection (PAR) (Almarode, Fisher, Assof, Moore, Hattie, and Frey, 2019). In this scenario, learners complete their task—along with their mathematics story the explains the process for completing the task (not just *what* they did, by *why* they did it)—that is ready to be reviewed by a peer. The peer feedback is offered in two phases. First, peers provide each other written feedback in the form of annotations and a rating toward mastery of each success criteria during a silent review phase. Second, peers discuss the written feedback they provided and ask any clarifying questions they might have about that feedback. The final step for students is to revise their draft solution into a final submission and include a reflection of how their thinking changed throughout this process.

PEER-ASSISTED REFLECTION FOR GRAPHING TASK

Success Criteria

[ ] I can formulate questions necessary for completing the task.

[ ] I can collect and organize the data generated from those questions.

[ ] I can represent the data in a line graph or bar graph.

[ ] I can justify my choice of graph for representing the data.

[ ] I can interpret my graph to address the specific task.

[ ] I can write an explanation of the process in my mathematics notebook.

Scenarios (circle the option selected by your peer)

1. Memorial Elementary is changing the mascot of our school. Your task is to survey students throughout the school so that you can make a recommendation about the type of mascot and his or her specific characteristics (e.g., type of animal, color, and name).
2. The local fast-food restaurant is trying to offer healthier side options in the "kid's meals." Your task is to poll students in the school so that you can make a recommendation about side options that are both appealing to your peers and healthy (e.g., types of fruits, types of veggies, mixture of the two, etc.).
3. The principal is creating a safety manual for the school that will help prepare teachers and students for different types of severe weather or natural disasters. Your task is to provide data that help her decide how to prioritize those events in the safety manual (e.g., which one should be listed first, which one is not likely to occur, etc.).

Reviewed by: _____

Rate your peer's mastery of the success criterion (this is the *last* thing you do):

[ ] I can formulate questions necessary for completing the task.

0—DO NOT check that box	1—ALMOST check that box	2—CHECK that box
None of the questions will generate the data necessary to address the task.	Some of the questions will generate the data necessary to address the task.	All of the questions will generate the data necessary to address the task.

[ ] I can collect and organize the data generated from those questions.

0—DO NOT check that box	1—ALMOST check that box	2—CHECK that box

[ ] I can represent the data in a line graph or bar graph.

0—DO NOT check that box	1—ALMOST check that box	2—CHECK that box

[ ] I can justify my choice of graph for representing the data.

0—DO NOT check that box	1—ALMOST check that box	2—CHECK that box

[ ] I can interpret my graph to address the specific task.

0—DO NOT check that box	1—ALMOST check that box	2—CHECK that box

[ ] I can write an explanation of the process in my mathematics notebook.

0—DO NOT check that box	1—ALMOST check that box	2—CHECK that box

DRAFT SOLUTION	ANNOTATIONS (author's and peer's)
REVISED SOLUTION	ANNOTATIONS (author only)

Figure 5.9

This peer-assisted reflection task is available for download at **resources.corwin.com/vlmathematics-3-5.**

Teaching Takeaway

To provide the most amount of feedback to the greatest number of learners as possible, incorporate student-to-student feedback and strategies for student-to-self feedback.

EFFECT SIZE FOR ASSESSMENT-CAPABLE VISIBLE LEARNERS = **1.33**

The PAR cycle gives students the opportunity to compare and contrast: *This is what I used to be able to do; this is what I can do now*. *This is how I used to think about this problem; this is how I think about it now*. *This is what I used to know; this is what I know now*. In addition to these before-and-after snapshots, the feedback and annotation components of PARs can collect much of the connective tissue that bridged students from where they were to where they are. In other words, not only does growth as an outcome become blatant to students, but students become aware of their own growth process as well.

Process feedback supports making connections, use of multiple strategies, self-explanation, self-monitoring, self-questioning, and critical thinking. For example, Ms. Showker may ask the learner what strategies he or she used in making the decisions about increasing or decreasing intervals and ask if the strategy worked well or if a different strategy may be more efficient. Rather than focusing solely on the correct answer regarding the relationship between an independent and dependent variable, a teacher may ask a student, "What is your explanation for your answer?" The focus of process feedback is on relationships between ideas, students' strategies for evaluating the reasonableness of an answer or solution, explicitly learning from mistakes, and helping the learner identify different strategies for addressing a task.

Like task feedback, process feedback should be specific and constructive and should support learners' pathways toward self-regulation feedback. That is, the feedback should deepen thinking, reasoning, explanations, and connections. Does the teacher prompt learners through strategic questioning related to the learning process? What appears to be wrong, and why? What approach or strategies did the learner use or apply to the task? What is an explanation for the answer, response, or solution? What are the relationships with other parts of the task?