

Student Journals

Student journals provide a place for students to capture what they learn about the problem-solving process as well as the mathematical content. Journals also provide a place for students to reflect on the evolution of their own thinking—to become metacognitive.

Students learn a model for journal writing from the board writing of teachers. Examine the blackboard and 3 student journals, from a TTP lesson centered on the problem “How many diagonals does an octagon have?”

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Consider the board writing and student journals. What features seem useful in promoting students’ mathematical practices and habits of mind? How might students use the board to inform their journals?

After you examine and discuss the board and journal examples, examine some of the elements noticed by other educators (below).

Thought Bubbles	The upper left corner of the board shows a student idea in a thought bubble. The magnetic name tag of the student is posted next to the thought bubble. The student wonders “is there a pattern that relates the number of sides to the number of diagonals?” The student’s approach is to investigate polygons with fewer sides (triangle, square, pentagon). Perhaps this idea was chosen for a thought bubble when facing a novel problem.
Visual clarity	The board lists students’ ideas to make work visually clear, such as using different- colored lines for each vertex or putting a letter at each vertex. A class may have agreed-upon visual conventions, such as particular colors, locations, or symbols for different kinds of information.
Challenges and mistakes	The board records students’ mistakes and challenges, such as non-systematic counting of diagonals, or noticing only the diagonals that halve the octagon. Together, these mistakes help students see they need to devise a systematic way to generate and count all the diagonals.
Board as a public resource for learning	Students take ideas from the board—from their shared work as a mathematics community—to reflect on and revise their own thinking. For example, students take from the board and use in their journals ideas about the value of using colors, the problem of double-counting diagonals, and the mistakes in their own thinking.

Watching brief segments from the video “Can You Find the Area?”(see [Segment 4](#) and [Segment 6](#)) may also spark your thinking about how to build students’ journal writing habits. At the end of each of three consecutive lessons, Dr. Takahashi asks students to write about what they learned, and he selects several journals to be copied and read aloud at the beginning of the next lesson. He deliberately selects journals that model features he would like students to incorporate (such as drawings, mathematical expressions, and comparison of solutions). As you watch the video, consider different functions of journals, such as helping students:

- Recall key ideas from the previous lesson to be carried forward into the current lesson;
- See the value of one another’s ideas;
- Organize and revisit their own thinking;
- Reflect on how and why their thinking changed.

Identify aspects of journal writing you would like to develop in your classroom. For example, do students:

- Routinely write mathematical expressions to go with their pictures and explanations?
- Record classmates' ideas and use them as a resource for deepening their own thinking?
- Record how their thinking changed (by crossing out and adding writing, rather than erasing)?

Update your unit plan to reflect any aspects of journal writing that you want to work on in this unit (perhaps under item 4, goals of instruction, or item 8, flow of the lesson).

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