



Revising and Editing: Asking Questions to Revise Writing

MATHEMATICS

Students ask other students questions and provide specific feedback about other students' writing. Students gain a sense of taking responsibility for their writing.

Purpose

- Discuss the ideas in a piece of writing in order to refine and revise the ideas.

Payoff

Students will:

- engage in meaningful discussion and deepen understanding about the subject content.
- develop over time into supportive partners for peers.
- recognize that the writer owns the writing, but that collaboration helps other students to recognize unintended omissions and inconsistencies.

Tips and Resources

- The writer Nancie Atwell explains that “the writer owns the writing.” This means that the writer should always be given the first opportunity to amend ideas, form and style rather than having another person suggest them. When other students ask questions or provide open-ended prompts about a problem solution, they give the writer an opportunity to think deeply about his/her solution and to gain a better sense of how to tailor it to make it both a more effective piece of communication and a better solution.
- Revising and Editing a solution to a mathematics problem differs from revising and editing a literary piece in at least two ways: first, it is not the power of words, expressions, or style that convinces the reader but rather the logic – the reasoning must be clear; second, mathematical communication has its own syntax and conventions which must be adhered to if correctness as well as clarity is to be presented.
- See the Mathematics exemplars (“Mathematics: The Ontario Curriculum – Exemplars”) for samples of student work at levels 1,2,3, and 4 to use as examples of both good solutions and of solutions needing revising. These are available both on-line at <http://www.edu.gov.on.ca/eng/document/curricul/elemcurric.html> and in hard-copy form from The Queen’s Printer, and should already be in every school.
- See also EQAO Release Materials from the Grade 9 testing for other examples. These are available on-line at http://www.eqao.com/06ede/ed6_1e.asp
- See the handout of suggested prompts and questions, Student Resource, *Asking Questions to Revise Writing –Sample Questions*.

Further Support

- Create groups of three or four that will work together to support each other.



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What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Prepare an overhead or a paper copy of two sample solutions to a particular problem - one containing form/logic errors and omissions, the other a model solution. • Have the students read the inappropriate solution, asking them to either note or highlight form/convention/logic errors and omissions. • Ask students to identify the areas of concern or confusion that they discovered. • Model the use of questions and prompts to the problem solver, asking students to consider the purpose of these questions and prompts. 	<ul style="list-style-type: none"> • Look for areas of confusion and form/convention errors and omissions. • Offer suggestions for areas of concern or confusion. • Suggest the purposes of the questions and prompts.
<p>During</p> <ul style="list-style-type: none"> • Give students the Student Resource, <i>Asking Questions to Revise Written Solutions</i>, and take a few minutes to read it over with them. • Put students in conferencing groups of three or four. • Ask students to exchange their solution with another person in their group. • Ask the students to read the solution received and to make notes using one or two of the 'praises' and/or 'questions'. • Have the students return the solutions to then be exchanged with a different student. • Have the students take a minute to read over the notes made on their own draft solution. • Provide 10 to 15 minutes for this exercise. 	<ul style="list-style-type: none"> • Exchange solutions with another group member. • Read the received solution and make notes using the 'praise' and/or 'questions'. • Repeat the exchange with a different group member.
<p>After</p> <ul style="list-style-type: none"> • Engage students in a whole-class discussion about the process. How helpful was the process in helping them to set direction for revising their draft solution? • Direct students to revise their draft solution. 	<ul style="list-style-type: none"> • Revise own draft solution based on the 'praises' and 'questions' from their partners.

Notes



Asking Questions to Revise Writing – Sample Questions

Your job as a revising partner is a very important one. You can help the writer by:

- giving the writer a sense of how completely the task has been accomplished
- praising proper form, use of required convention and/or reasoning
- identifying poor form
- identifying areas of confusion
- targeting statements that are not relevant
- targeting conclusions that do not address the question
- targeting conclusions that are not supported with evidence.

However, the writer owns the writing, and should not feel that your suggestions or ideas are being imposed as THE solution. The best way to help your revising partner is to phrase your comments as open-ended prompts, as questions, or as a combination of an observation and a question. Some suggestions are below.

- Begin by using any “praise” statements that you can.
- If you can’t use the “praise” suggestions, you should use the “questions.”

Praise	Questions
<ul style="list-style-type: none"> • Your solution is complete. • Your solution uses proper form. • Your conclusion is consistent with the question being asked. • Your work is clearly laid out with your steps outlined. • You have used all the necessary conventions. • You have made good use of mathematical terminology. • Your strategy is reasonable. • You were able to consider more than one possible solution. 	<ul style="list-style-type: none"> • Your solution doesn’t seem to be complete: <ol style="list-style-type: none"> a) Have you defined the variable? b) Have you included a concluding statement? c) Is your conclusion connected to the numerical values that you worked out? d) Have you shown all of your steps? • How could you improve the ‘form’ of your solution? <ol style="list-style-type: none"> a) Do you have more than one = sign on a line? b) Have you carried all of the expression from line to line? c) Have you used the appropriate units? • What conclusion would better connect to the question being asked? • Should the numerical answer you calculated be rounded? If yes, up or down? • What comments could you add to clearly identify the steps you took? • How could you organize/space your solution to help the reader follow your thinking? • Could you include a diagram, chart or graph to support your thinking? • What conventions have to be paid attention to in your solution (e.g., units, = sign position, rounding, labels and scales on graphs / diagrams, symbols, ...)? • What mathematical terminology and symbols can you use in your solution? • Does your strategy produce an answer to the question being asked? • Does your diagram/graph reflect the information given in the problem? • Did you choose appropriate values from the given chart/graph? • Did you choose an appropriate formula? • Can this problem have more than one solution?