



Revising and Editing: Peer Editing

MATHEMATICS

Peer editing gives students an opportunity to engage in important conversations about how a piece of writing for an assignment in any subject area has been constructed and whether it achieves its purpose, considering the audience. By reading each other's work, asking questions about it, and identifying areas of concern, students learn a great deal about how to put information together and express ideas effectively.

Purpose

- Have students look at their own and others' writing with a more knowledgeable, critical eye.

Payoff

Students will:

- have an audience for the writing, other than the teacher.
- develop skills in editing and proofreading.
- receive peer input about possible errors and areas of concern, in a "low-risk" process.
- have positive, small-group discussions.

Tips and Resources

- Mathematics peer editors should not be expected to correct all of the writer's errors, since the writer is responsible for the piece's clarity and precision. Rather, the teacher and other students should provide support for the writer to make improvements.
- Peer editing of mathematics written responses is a skill that must be built and practised over time. Begin with a single focus (such as, being precise in the use of mathematics), then add elements one at a time, such as: including sufficient explanatory detail and supporting evidence, having a logical sequence of ideas, using different representational forms (i.e., words, numbers, pictures, symbols), using mathematics terminology and conventions.
- This strategy may be used more intensively where time permits or where the mathematics writing is particularly significant (e.g., lesson focus is on mathematical communication). In these cases, student work may be edited by more than one group, so that each student receives feedback from a larger number of peers. Also, the analysis of the components of effective mathematics writing using student samples of work from EQAO and Ministry of Education Mathematics Exemplars is effective in focusing students on the criteria for effective mathematical communication.
- Each student should have the opportunity to get feedback from two other students about their mathematics writing.
- Peer editors should record their feedback using a Peer Editing Checklist and discuss their ideas face-to-face with the writer so that questions for clarification can be asked and responses can be given. Also, such a shared discussion can include correction of inaccurate mathematics calculations, correction of the application of mathematical procedures, and collaborative revision of the mathematics writing.
- See Student Resource, *Peer Editing – Being an Audience*.
- See Student Resource, *Peer Editing – Sample Checklist*.

Further Support

- Consider balancing each group with students who have varying skills and knowledge to bring to the peer-editing process. More capable peer editors can act as models for the students who haven't yet consolidated the concepts or skills.
- Explain to students that you have designed the triads or groups to include a very creative person, a person with good technical skills, and one or more persons who would provide a very honest audience for the writing.
- Consider turning some of the questions into prompts (e.g., Effective mathematics communication looks like ...; I'd like more information about ...; I was unsure of what the writer was showing ...).



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What teachers do	What students do
<p>Before</p> <ul style="list-style-type: none"> • Ask students to bring a completed draft of a writing assignment to class on a specified date. • Divide students into triads. • Distribute a peer-editing checklist (see Student Resource, <i>Peer Editing - Sample Checklist</i>). Discuss the characteristics of effective mathematics writing, modeling questions students may ask. • Make an overhead of the Student/Teacher Resource, <i>Peer Editing – Being an Audience</i>, to share the questions with students. 	<ul style="list-style-type: none"> • Bring a completed draft of a mathematics writing assignment to class on the specified date.
<p>During</p> <ul style="list-style-type: none"> • Give directions for the peer editing process: one student exchanges their mathematics writing piece with another student. Students read the writing pieces making running comments, in terms of strengths, suggestions, and questions. • Once the peer reading and responding is completed, direct the peer editor to pass the mathematics writing to the second peer editor. • Remind students that they are not responsible for correcting all the writer's errors, but that they can underline areas of concern, or circle words that should be checked for spelling or usage. • Monitor and support the group processes by stopping them and having students identify a strength. 	<ul style="list-style-type: none"> • Give their piece of writing to another student. • Individually read and annotate (circling, underlining, and writing questions or comments). • Remember that the writer owns the writing; therefore, the reader is not primarily responsible for correcting all the writer's errors. • Review a different piece of writing. • As a group, discuss each piece and complete a peer-editing checklist arriving at consensus (through discussion) about judgments, suggestions, and comments. • Sign or initial the peer-editing checklists when the group is done, and return the writing pieces to the original owners.
<p>After</p> <ul style="list-style-type: none"> • Give each student time to look at the peer-editing checklist that accompanies the writing pieces. • Debrief the activity with the class, asking questions such as: <ul style="list-style-type: none"> <input type="checkbox"/> What were the strengths you noticed in the best pieces of writing in various areas (e.g., in the accuracy of the mathematical calculations, supporting details)? <input type="checkbox"/> What were some typical areas needing improvement? <input type="checkbox"/> What types of things will you have to do to improve your work? • Provide time for each student to engage in a brief conference with a student who peer-edited his/her piece of writing, to get a deeper understanding of the comments and suggestions. 	<ul style="list-style-type: none"> • Read the peer-editing checklist comments that they receive with their work. • Take part in the class debriefing discussion. • Confer with one other student to provide more complete feedback and comments or suggestions. • Complete subsequent draft, if assigned.

Notes



Peer Editing – Being an Audience

Ask yourself (and the writer) these questions as you read a mathematical solution, explanation or justification.

1. How were the ideas in the mathematics explanation or justification connected to the question, problem, problem solving process, and/or problem solving context?
2. How were the mathematical ideas clearly expressed and focused?
3. How were the ideas organized?
4. How clear was the mathematics solution, explanation or justification?
5. How were the examples and/or supporting evidence relevant to the mathematical explanation or justification?
6. How was the mathematical supporting evidence appropriate and varied, in terms of its mathematical forms (i.e., words, numbers, graphic representation, symbols)?
7. Where in the explanation or justification were mathematics terminology and conventions accurately, effectively, and consistently used?



Student Resource

Peer Editing - Sample Checklist

Writer's Name		Mathematics Task	Grade	
#	Mathematical solutions, explanations and/or justifications ...	Y	N	
1.	... are connected to the mathematics question, problem, problem solving process, and/or problem solving context.			
2.	... are focused, concise, and clear.			
3.	... are mathematically precise.			
4.	... are sufficiently detailed.			
5.	... include logically sequenced, mathematical ideas.			
6.	... include relevant, mathematical supporting evidence.			
7.	... include a variety of mathematical forms if appropriate (e.g., words, numbers, graphic representation, symbols).			
8.	... are persuasive through the effective integration of narrative and mathematical forms.			
9.	... uses mathematics terminology and conventions accurately, effectively, and fluently.			
Running Comments				
Strengths				
Areas for Improvement				
Suggested Next Steps				
Peer Editor Signatures		1.	2.	