

Writing activities for mathematics classes.

PURPOSE: To get acquainted with students.

- *Mathematical Autobiography*: Students describe how they feel about their performance and abilities as a mathematics student through their school years.
- *First Day Letters*: Students write to their teacher telling him/her something interesting about themselves. This may include school experiences, past performance in mathematics classes, goals for the new year, or any other information the student would like to share with the teacher.
- *If Math Were an Animal, What Animal Would it Be and Why?*: Students can use metaphors to reveal their feelings about mathematics.

PURPOSE: To find out what students already know.

- *Tell Me Everything You Know About...*: In lieu of a pretest, students summarize their knowledge of a topic.
- *How Do You... And Why Do this*: Students explain an algorithm, process, or instruction.

PURPOSE: To engage students in the learning process.

- *Assign a Project or Report*: Students work independently, with a partner, or a group to investigate a mathematical topic.
- *Problem Solving Write Up*: After solving a problem, or series of problems, the student writes a report describing his/her method of solving the problem(s).
- *Investigate and Record Observations*: Students perform an investigation, then record their observations. This can be done in groups and presented to the class.
- *Observe Problem Solving*: Students observe others (peers, relatives) solve problems and write a report documenting the strategies they observed.

PURPOSE: To address the affective aspect of learning.

- *Keep a Journal*: Students record observations and feelings about learning: Writing on assigned topics or topics of their own choosing.
- *Write to Students at the Next or Previous Level*: Student write to older or younger peers to get and/or give advice on the topics or how to succeed in the class.
- *Interview an Adult Who Has an Interesting Career*: Find out how mathematics is used in careers and what mathematics are required.

PURPOSE: Help students prepare for assessment.

- *Write Three Good Questions For a Test*: Students review the material in the unit and sort out key ideas.
- *Write Your Study Plan*: Students describe to the teacher how they plan to study, what they need to work on most, how much time they plan to dedicate to studying, and anything else they plan to do when preparing for an exam.
- *Write a Summary of Topics on the Test*: Students, alone or in groups, prepare a summary of all or part of the unit for the class.

- Respond to Fictitious Student's Work: Students read and "grade" teacher-prepared work in preparation for their assessment on the same topic.

PURPOSE: To assess more than computational skills.

- Explain How or Why: Students are asked on an assessment to explain, in words, how or why a procedure works.
- Find the Error in This Work: On an assessment students find, correct, and explain procedural or conceptual errors in a problem that has been incorrectly completed.

PURPOSE: To encourage student to reflect.

- What Have You Learned, or Relearned: Students reflect on the learning process and content.
- What Have You Learned About Yourself: This processing encourages student to take responsibility for their own learning.
- What Will You do Differently For the Next Test: This also promotes responsibility for learning and helps students set goals for themselves.
- Reflect on the Experience of Working in a Group: Students write something positive about each member of their group and/or what they plan to do differently next time to help the group function better.

**Implementation Advice:
How to get writing started with your students.**

Start small. Students who have not been asked to write in a mathematics class may be resistant to the idea. Ease them into the process by starting with short writing assignments. Moreover, teachers who have not assigned writing need time to develop the skill of reading and responding to student writing.

Assign only as much writing as you plan to read and respond. If student are to value the experience of writing, teachers must read and comment on the ideas students express. Students need teacher feedback on their work in order to learn and grow. The rule of thumb recommended is "Do not assign a new writing assignment until you have read and returned the last one."

Get a lot out of a single piece of writing. Some of the assignment ideas described in the previous section can serve more than one purpose. For example, the letters students write to a friend in order to develop or review a concept can be given to students in another class. They read and respond to the letters, reviewing the content as well.

Model some writing for students. Students who have not been asked to write in mathematics classes may not understand what you mean when you ask them to describe their thinking or ideas. Before assigning this, model the activity on an overhead or a handout. Student writing will improve over time when the expectation for their writing is clearly articulated and modeled.

Assess student writing carefully. To maintain an environment where students feel free to write and where teachers can learn from their writing, it is important that students do not feel threatened by the evaluation of their writing. You may correct spelling, grammar and punctuation errors, but these errors should not effect their grade. Teachers should emphasize to

students the need to express what they feel and have learned in their mathematics class, another place to continue to practice and learn to write effectively. When grading affective writing, in which students are express their own feelings and opinions, it would be inappropriate to judge the content of the work. Simply record the completion of the assignment.

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