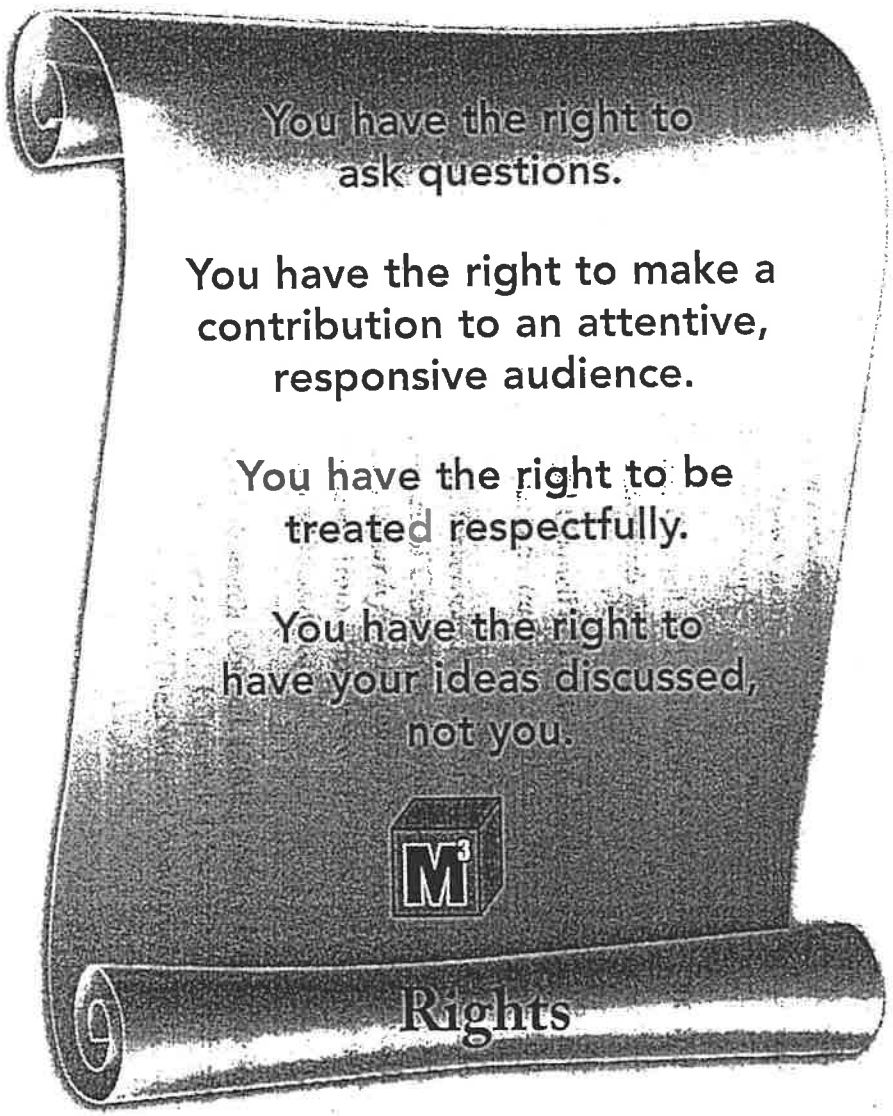
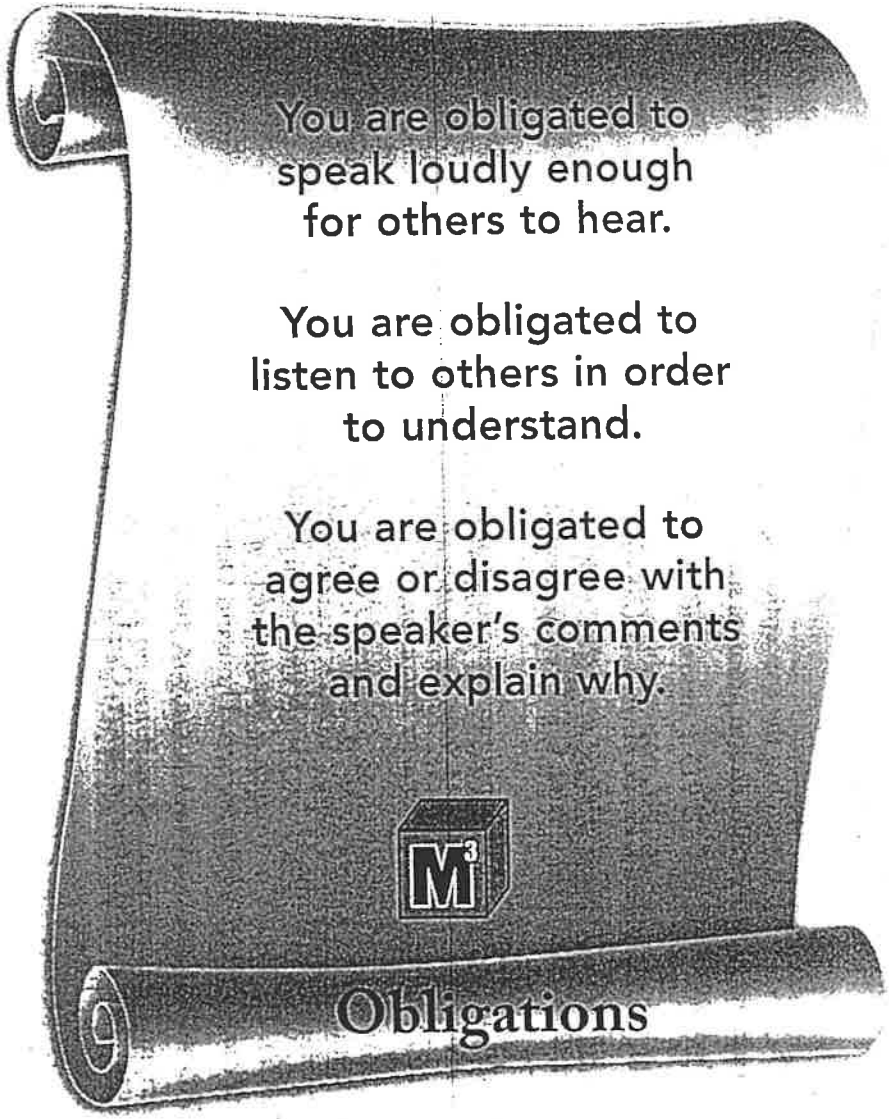
CLASSROOM DISCUSSIONS





Adapted from Chapin, S. H., O'Connor, C., & Anderson, N. C. (2013). *Classroom discussions in math: A teacher's guide for using talk moves to support the Common Core and more, Grades K–6.* (3rd edition). Sausalito, CA: Math Solutions Publications.

M³ (all) 3rd - 5th

THINKING LIKE A MATHEMATICIAN*

Here is a list of skills mathematicians use every day. See how many you can use in your Student Mathematician's Journal.

1. Make sense of problems and keep trying until you solve them.
2. Understand quantities, their relationships, and how to represent them.
3. Build logical reasons to defend your thinking. Consider the reasoning of others and ask useful questions to help make sense of the reasoning. Explain why you agree or disagree with another's reasoning.
4. Use the math you know to help solve problems in everyday life. Use physical models, drawings, tables, graphs, and/or equations to help you.
5. Choose and use the appropriate math tools to help solve each problem.
6. Communicate explanations clearly using correct math vocabulary and symbols.
7. Look closely and use patterns to help solve problems.
8. Notice if you are using the same math again and again and look for short cuts.
9. Solve a problem in a new way. Ask new questions to investigate.**

* Adapted from the Common Core State Standards: Standards for Mathematical Practice

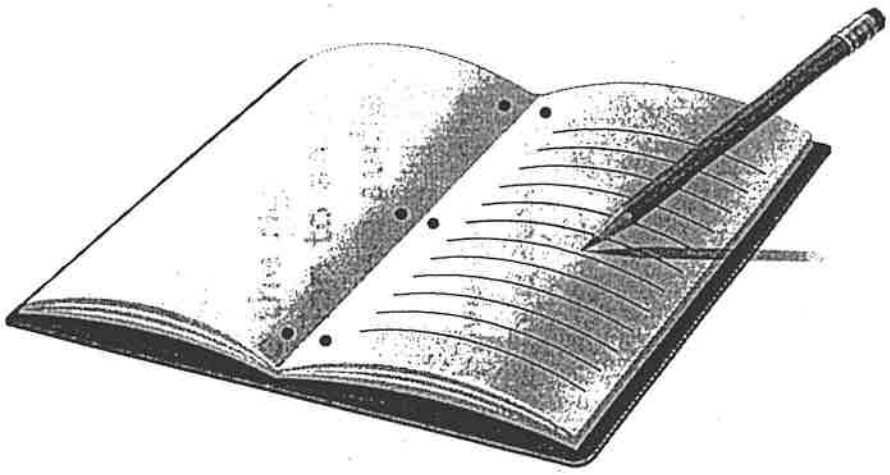
National Governors Association Center for Best Practices (NGA Center), Council of Chief State School Officers (CCSSO). (2010). *Common Core State Standards for Mathematics*. Washington, DC: Retrieved from http://www.corestandards.org/the-standards.

** Johnsen, S. K., & Sheffield, L. J. (Eds.). (2013). *Using the common core state standards for mathematics with gifted and advanced learners*. Waco, TX : Prufrock Press.

MATHEMATICIANS WRITE ON!

When you write in your Mathematician's Journal:

1. Read the questions. Make sure you understand every part and vocabulary word in the questions.
2. Brainstorm ideas.
3. Write your answer.
4. Read over your answers and check that you:
   a. answered all of the questions;
   b. defended your answers by using vocabulary words, drawings, numbers, and/or other details.
5. Revise your answers if you think someone else reading it would not know what you were thinking by asking yourself the following questions:
   a. "Is this clear?"
   b. "Will the reader understand why I did what I did?"



MATH MESSAGING BOARD

TALK ABOUT IT

KEEP A RECORD

WRAP IT UP

WRITE ABOUT IT

STUDENT MATHEMATICIAN'S JOURNAL: GUIDES FOR TEACHING AND ASSESSING

RUBRIC FOR STUDENT MATHEMATICIAN'S JOURNAL

	MATHEMATICAL CONCEPTS
4	Overall, student demonstrates a strong understanding of concepts and, if applicable, uses an appropriate and efficient strategy to solve problem correctly. The student answers all parts of the question/prompt.
3	Overall, student demonstrates a good understanding of concepts and, if applicable, uses an appropriate and efficient strategy but with minor errors or incomplete understanding. The student answers all parts of the question.
2	Overall, student demonstrates a partial understanding of concepts and, if applicable, uses an appropriate strategy but may have major errors. The student may not have answered all questions.
1	Overall, student demonstrates a lack of understanding of concepts and, if applicable, does not use an appropriate strategy. The student may not have answered all questions.
	MATHEMATICAL REASONING
4	Student states ideas/generalizations that are well developed and builds a strong logical progression of statements to explain the reasoning. Student fully justifies the conclusion with supporting details and may use a variety of representations such as examples, charts, graphs, models and words as appropriate.
3	Student states adequately developed ideas/generalizations and builds an appropriate logical progression of statements to explain the reasoning. The reader may need to infer a step that has not been fully explained. Student provides some justification for the reasoning.
2	Student states partially developed ideas/generalizations and/or attempts to justify the reasoning but may be missing steps in the progression of statements that cause difficulty in understanding the explanation.
1	Student does not state ideas/generalizations clearly and does not provide an explanation to justify the thinking.
	MATHEMATICAL VOCABULARY
4	Student uses all mathematical vocabulary appropriately; including mathematical vocabulary related to the major math concept(s) of the unit.
3	Student uses most vocabulary appropriately. Student may have misused or omitted an appropriate vocabulary term.
2	Student uses only some of the mathematical vocabulary or may have a major misunderstanding of terms. Student may have misused or omitted several vocabulary terms or a key vocabulary term related to the major concept(s) of the unit.
1	Student does not use any mathematical vocabulary appropriate to the concept(s) being discussed.

Any non-response is given a rating of zero.