



MACOMB COUNTY MATHEMATICS NEWSLETTER

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MACOMB INTERMEDIATE SCHOOL DISTRICT
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INTRODUCTION

The purpose of this newsletter is to provide information and stimulate conversation about the new Michigan Merit Curriculum (MMC).

This publication will:

- clarify Michigan High School Content Expectations,
- facilitate transition to the Michigan Merit Curriculum,
- exemplify materials and assessments,
- solidify understanding of mathematics content, and
- validate what most teachers know and are doing.

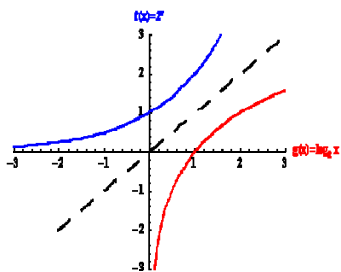
This newsletter will be of interest to:

- mathematics teachers,
- district and building administrators,
- curriculum developers,
- consultants, and
- teacher educators.

THIS YEAR – ALGEBRA I

The focus this year is on the Michigan Merit Curriculum for Algebra I. Michigan law now requires four years of mathematics for **all** students beginning with the current eighth-graders who will be graduating in 2011.

Next year both Algebra I and Geometry will be addressed. The following year Algebra II will be added; after that, the fourth year will be included.



FEATURES

One newsletter feature will be problems and activities aligned with the High School Content Expectations (HSCE), and may also include questioning to help raise students' mathematical reasoning as well as an assessment piece to find out how students are doing.

As you change to reflect your students' needs, this publication will also change to reflect your needs. So the format today may not be the format tomorrow.

COMMENTS ON HSCE

As you read the High School Content Expectations (HSCE), be conscious of the verbs and the nouns (in addition to the content and the mathematical process).

The verbs are what students do. *Identify, describe, explain, write, graph, relate, find, use, convert, express, construct, estimate, recognize, interpret, and analyze* are some of the verbs in the Algebra I HSCE. A cursory review of a few verbs used in the Algebra I HSCE resulted in finding 'solve' mentioned in 12 expectations: six times to solve problems, including real-world problems; six times to solve equations and inequalities. Further, 'explain' was found in 6 expectations, 'interpret' in six, and 'recognize' in ten, and that is only a partial list of the verbs. Being able to solve is not enough to satisfy the HSCE.

The nouns indicate what mathematical content the students are to know. Some of the Algebra I nouns are *properties, reasons, data set, equation, complex numbers, logarithmic relationships, functions, and transformations*.

PROBLEMS AND ACTIVITIES

Here is one HSCE and an activity aligned with it. After reading this section, you may say, “We do that in such-and-such a chapter.” If so, you are confirming that your curriculum is aligned to that particular HSCE.



HSCE

HSCE A2.5.1. Write the symbolic form and sketch the graph of an exponential function given appropriate information.

1. Begin with a regular sheet of 8.5x11 copy paper and fold it in half. Now there are two layers of paper in the stack. Fold the stack in half a second time. Continue the process by folding each new stack in half.

- Write a formula for the number of layers in the stack, L , after 5 executions of “fold in half”.
- Write a formula for the number of layers in the stack after n executions of “fold in half”. Explain whether it matters if you fold short-edge to short-edge, long-edge to long-edge, or alternate.
- Suppose the thickness of the sheet of paper you begin with is 0.005 inches. Write a formula for the thickness, T , of the stack after n executions of “fold in half”.
- How many fold-in-halves are necessary to have a stack 1-inch thick? Explain your solution.
- Write a formula for the area, A , of the top sheet in the stack. Explain whether or not it matters if you fold short-edge to short-edge, long-edge to long-edge, or alternate.
- If you do the folding yourself with a sheet of copy paper, it bogs down at a certain point. Can you explain why?
- To learn more about the world record holder for folding paper, visit www.pomonahistorical.org/12times.htm

The answers will be posted on the math blog (see Feedback).

2. Suppose \$500 is invested in a savings account earning 6% compounded yearly.

- Write a formula for the value of the account after n years.
- What rate must be earned so the account doubles in 8 years?
- Compare your result with the *Rule of 72*, which states: If you divide the rate into 72 the result is the number of years required for the investment to double.

The answers will be posted on the math blog (see Feedback).

POINT OF EMPHASIS

The HSCE place great value on the multiple representation of mathematical ideas. The representation can be

- numerical,
- graphical or pictorial,
- algebraic, and
- verbal or literal.

Students are expected to effectively and efficiently move from one representation to another. For example, a linear function can be represented numerically in a table, graphically as a line, algebraically in slope-intercept form, and verbally as a real-world description.

TECHNOLOGY ACTIVITY

For a graphing calculator activity using the TI-83 Plus or TI-84 Plus related to HSCE A2.5.1 go to

http://education.ti.com/educationportal/activityexchange/activity_detail.do?cid=us&activityid=5654

Note: The underlining in the above website covers the underscore between activity and detail (activity_detail).

FEEDBACK

Contact us at

<http://visitmyclass.com/blogs/math> with your comments or questions.

