

# NAEP Frameworks and State Standards: Close Encounters of the 21<sup>st</sup> Century

## COMPARING NAEP AND MEAP CONTENT



Paul Stemmer, Michigan NAEP Coordinator  
National Conference on Student Assessment  
June 16, 2008 – Orlando, Florida

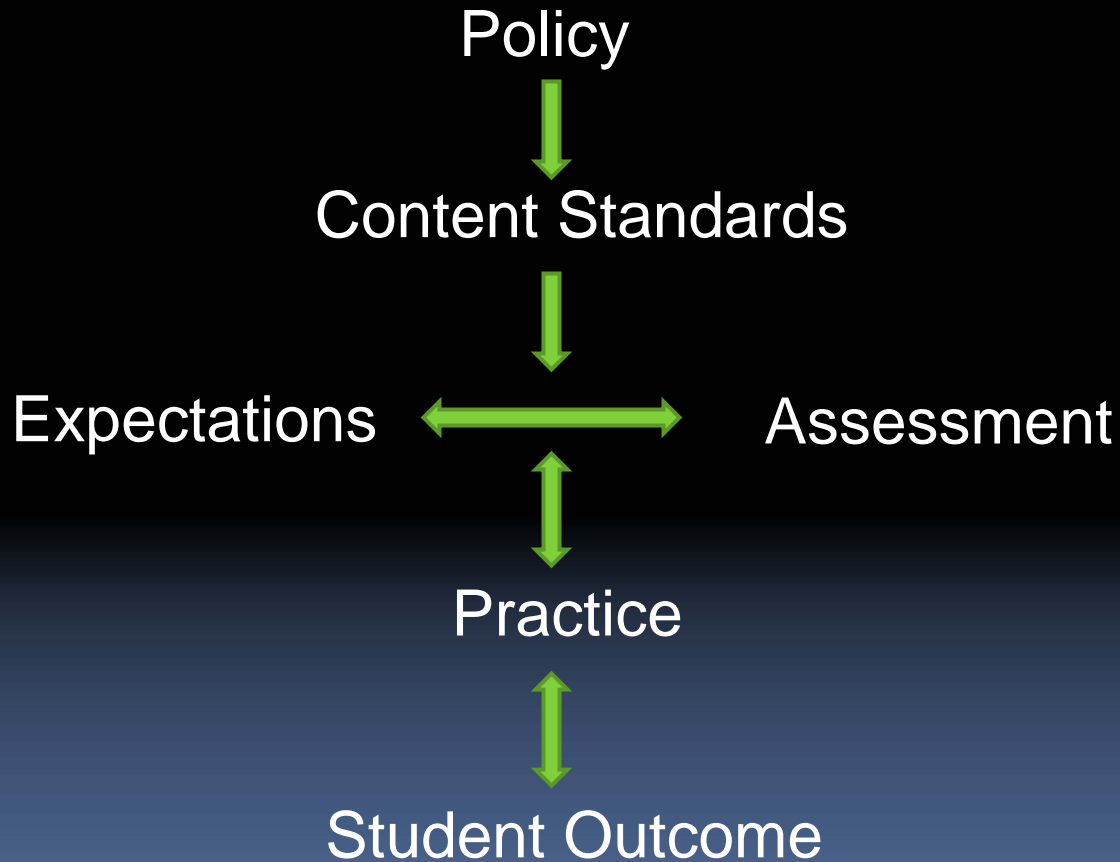
# Purpose of this Study

- Determine differences in MEAP and NAEP alignment of standards/frameworks
    1. Study curriculum content differences
    2. To improve Michigan Curriculum Standards
    3. To validate use of NAEP and questions tool released items for local assessment (balanced)
    4. Considered but ruled out using differences that might explain differences in scores
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# Difficult to link to score variance

- Many factors contribute to score variance
  - Alignment Grade Level Content Expectations (GLCE) / NAEP Assessment Framework
  - Item difficulty
  - Goal of test / Motivation of students
  - Testing methods

# Horizontal/Vertical Alignment



Qualitative			Quantitative		
<b>Content</b>  Webb	<b>Item Mapping</b>  Alignment	<b>Cognitive Demand</b>  Methods	<b>Item Level</b> IRT param. Difficulty Discrimination index	<b>Cut Scores</b>	<b>Cut Score Mapping</b>
Standards <ul style="list-style-type: none"> <li>▪ <b>Categorical Concurrence</b></li> <li>➤ <b>NAEP Asst. Framework</b></li> <li>➤ <b>Mich GLCE</b></li> </ul>	Item similarity  <b>Range of knowledge</b>	<u>NAEP</u> Complexity  Low, Moderate, High  <u>MEAP</u> <b>Depth of knowledge</b> 1) <b>Recall</b> 2) <b>Concept/Skill,</b> 3) <b>Strategic thinking,</b> 4) <b>Extended thinking</b>		<u>NAEP</u> <ul style="list-style-type: none"> <li>•Advanced</li> <li>•Proficient</li> <li>•Basic</li> <li>•Below Basic</li> </ul> <u>MEAP</u> <ul style="list-style-type: none"> <li>•Advanced</li> <li>•Proficient</li> <li>•Partial Prof.</li> <li>•Not Prof.</li> </ul>	Converting to common scales?  NCES 2005 Mapping Study  2007 Mapping Study



# Standards Comparison Table

## Appendix A.

**Table 1A. Grade 4 Cross Matrix Table  
Between NAEP objectives and GLCE expectations.**

### NUMBER AND OPERATIONS – Grade 4

#### Number sense

NAEP	GLCE
Identify the place value and actual value of digits in number.	<b>N.ME.03.02</b> Recognize and use expanded notation for numbers using place value to 10,000s place, e.g., 2,517 is 2 thousands, 5 hundreds, 1 ten, and 7 ones; 4 hundreds and 2 ones is 402; identify the place value of a digit in a number, e.g., in 3,241, 2 is in the hundreds place.
Represent numbers using models such as base 10 representations, number lines, and two-dimensional models.	<p><b>N.ME.02.05</b> Express numbers up to 1000 using place value, e.g., 137 is 1 hundred, 3 tens, and 7 ones; use concrete materials.</p> <p><b>N.MR.02.07</b> Find the distance between numbers on the number line, e.g., how far is 79 from 26?</p> <p><b>N.MR.02.09</b> Given a contextual situation that involves addition and subtraction for numbers up to two digits: model using objects or pictures, explain in words, record using numbers and symbols; solve.</p> <p><b>N.ME.02.20</b> Place 0 and halves, e.g., on the number line; relate to a ruler.</p> <p><b>N.ME.03.17</b> Recognize, name and use equivalent fractions with denominators 2, 4, and 8, using strips as area models.</p> <p><b>N.ME.03.18</b> Place fractions with denominators of 2, 4, and 8 on the number line; relate the number line to a ruler; compare and order up to three fractions with denominators 2, 4, and 8.</p>

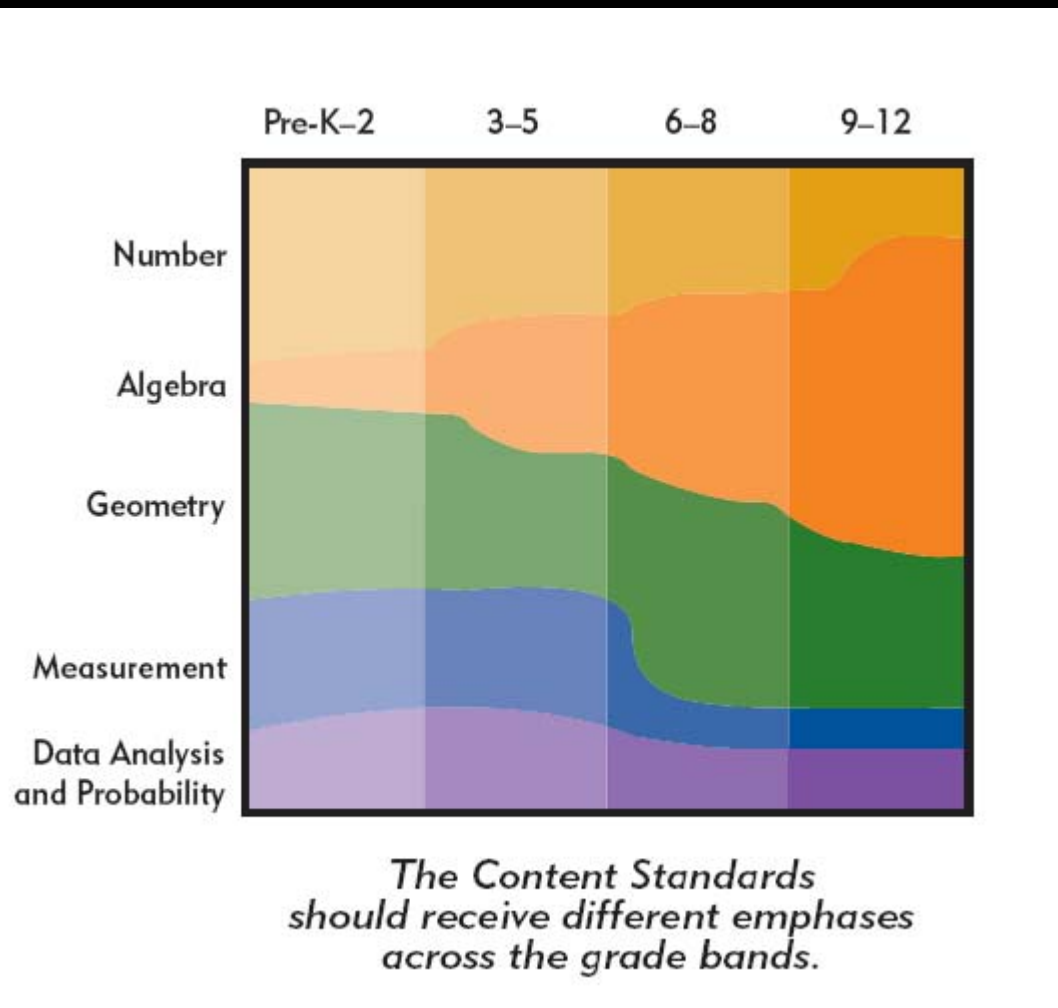
# Content Comparisons: Percent Overall Coverage

Math Strand	Grade 4	Grade 8
Match/Partial Match	82	78
No Match	18	22

# Comparison by Math Strands

Michigan GLCE	NAEP Framework	NCTM
Number and Operations	Number Properties and Operations	Number and Operations
Algebra	Algebra	Algebra
Geometry	Geometry	Geometry
Measurement	Measurement	Measurement
Data and Probability	Data Analysis and Probability	Data Analysis and Probability

# NCTM Content Standards Emphasis



# MEAP and NAEP Blueprint Comparison: Grade 4 Percent of Items

Math Strand	MEAP(K-	Difference	NAEP(G4)
Number Properties and Operations	44	+4	40
Algebra	16	-4 →	20
Geometry	17	+2	15
Measurement	16	+6	10
Data Analysis and Probability	7	-8 →	15

# MEAP and NAEP Blueprint Comparison: Grade 8 Percent of Items

Math Strand	MEAP(K5-	Difference	NAEP(G8)
Number Properties and Operations	44	← +24	20
Algebra	18	-12 →	30
Geometry	12	-8 →	20
Measurement	16	+1	15
Data Analysis and Probability	12	-3 →	15

# Non-Matches Useful

**Table Four. Grade 8 NAEP objectives that do not match GLCE's.**

NAEP subscale	NAEP Objectives that do not match any GLCE
1 Number operations	Describe the effect of multiplying and dividing by numbers including the effect of multiplying by zero or; a number less than zero, or; a number between zero and one; one or ; a number greater than one.
2. Properties of number and operations	Describe odd and even integers and how they behave under different operations.
3. Measuring physical attributes	Estimate the size of an object with respect to a given measurement attribute.
4. Measuring physical attributes	Solve problems involving indirect measurement such as finding the height of a building by comparing its shadow with the height and shadow of a known object.
5. Systems of Measurement	Determine appropriate size of unit of angle, or volume measurement in problem situation involving such attributes as length, area, or volume.
6. Dimension and Shape	Identify a geometric object given a written description of its properties.
	Identify, define, or describe geometric shapes in the plane and in three-dimensional space given a visual representation.
7. Relationships between geometric figures	Represent problem situations with simple geometric models to solve mathematical or real-world problems.



# Outcomes

- Confirm overlap in standards
- Moratorium on GLCE changes for a “few” years but helpful for future changes
  - Important to look at mismatches
- Useful to give teachers confidence in cooperating on NAEP activities
- Useful for Question Tool Training using the crosswalk

# MEAP/NAEP Alignment Status Quo Problems

- NCLB has changed perspective on accountability
- Alignment does not account for all variance
  - Pedagogy – not fully addressed in any assessment system (linkages, balanced assessment)
  - Assessment methods
    - Depth, type of items (fixed, open response)



# Next Steps

- Prepare and suggest for next  
Math Curriculum Review
- Continue use in Question Tool Training
  - Balanced assessment approaches can incorporate NAEP released items

# Thank You

- Paul Stemmer, Ph.D.  
Michigan NAEP State Coordinator
- Ruth Ann Hodges  
Mathematics Curriculum Consultant
- Kyle Ward  
Mathematics Assessment Consultant

Michigan Department of Education  
PO Box 30008  
Lansing, MI 48909



[stemmerp@mi.gov](mailto:stemmerp@mi.gov)  
<http://www.michigan.gov/naep>