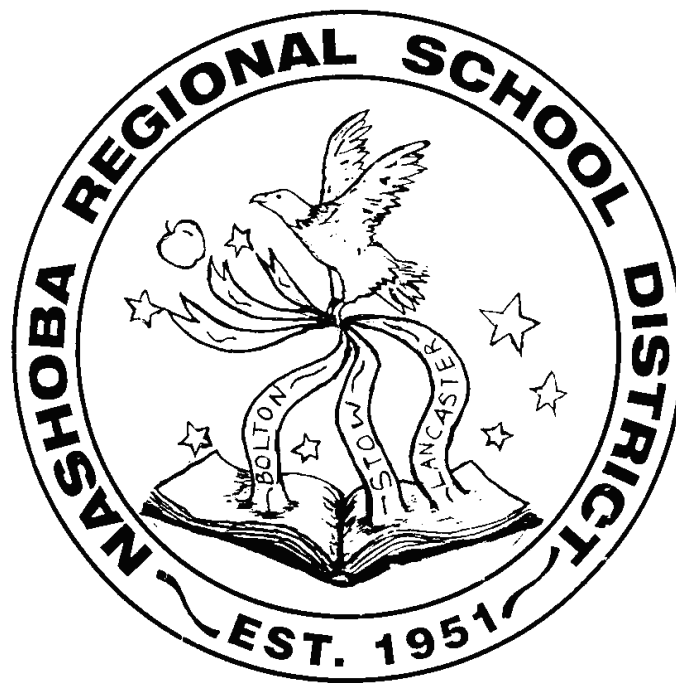


Math Curriculum Committee
Nashoba Regional School
District
2008-2009



Recommendations for Program
Adoption
Mathematics Instruction Materials

2008-2009 Math Curriculum Review
Grades K-5
Nashoba Regional School District

In the spring of 2008 the Nashoba Regional School District embarked on a process leading to the selection of core mathematics instructional materials for grades K-5. The process was outlined taking three important requirements into consideration.

1. The new mathematics program must align with national, state, and district standards.
2. The new program must take a K-12 view to ensure that students in K-5 are on a pathway for success in the demanding academic environment of the district's middle schools and high school.
3. The new mathematics materials must engage and challenge all students in both math fundamentals and higher levels of mathematics understanding.

These requirements were a primary focus as the Mathematics Curriculum Committee convened in the spring of 2008 to begin to conduct its review process.

Teachers were identified to serve as **Math Pilot Teachers**. Pilot Teachers would use one of two programs in their classrooms for a period of three months in the fall of 2008. The two Standard's Based pilot programs chosen were; *Everyday Mathematics* (third edition) and *New Investigations* (2008 edition). Many Pilot Teachers also served on the Math Curriculum Committee.

Both *Everyday Mathematics* and *New Investigations* were piloted at each grade and at each school. In total, thirty teachers participated in the piloting of the two programs. Materials for the pilot were distributed during the spring of 2008. Summer training, for both programs, was held to support Pilot Teachers in their efforts. Call-backs took place during the fall to ensure adequate support for Pilot Teachers.

Both before the Pilot Teachers began their work and while they were piloting the materials in their classrooms, the **Math Curriculum Committee** engaged in several phases of work which included the following steps:

- The Math Curriculum Committee engaged in reading and discussing current research in professional literature relating to mathematics.
- A review and comparison of sample materials to specific criteria was conducted before choosing the two programs to be piloted.
- The Math Curriculum Committee developed common understandings and values surrounding mathematics learning and instruction.
- The Math Curriculum Committee developed criteria for teachers to use while evaluating the two pilot programs.
- A recommendation from the Math Curriculum Committee as to the use of supplementary math materials was developed to complete the implementation of the math program.

The Math Curriculum Committee developed a document adapted from the book called *Choosing a Standards Based Mathematics Curriculum*. This document, “Criteria by which Math Materials will be Judged” (see appendix) was developed as a result of readings and discussions of current research in professional literature relating to mathematics. The document identifies five categories; Mathematical Content, Organization and Structure, Student Experiences, Teacher Support, and Assessment, to be evaluated. These criteria were further expanded to identify what each area would look like in a mathematics classroom. Pilot Teachers used this form to evaluate the two pilot programs during September, October, and November. Pilot Teachers were also asked to keep an anecdotal journal during the pilot period.

The committee believes that the quality of mathematics teaching is even more important to student success than the quality of the mathematics materials. An important question for consideration was, “Which program is most likely to support teachers effectively as they teach all students to make significant progress in learning mathematics?” The mathematics materials were scrutinized for their quality in terms of providing teachers with explicit background in mathematical content, clear direction in guiding student learning, high quality learning activities, well-designed assessment strategies, and appropriate materials for homework and parent communication. During the course of the pilot period the Pilot Teachers attended Math Curriculum Committee meetings to give feedback.

It was agreed that during the pilot period, Pilot Teachers would not supplement the pilot program they were using. The committee felt that it was important to explore each pilot program fully in order to identify the strengths and weaknesses. In the fall, Pilot Teachers distributed a letter to parents notifying them of the pilot program. Additionally, Pilot Teachers were asked to track the math skills they taught during the pilot period, using the Standards and Benchmark Math Checklists that had been developed. This ensured that no skills would be overlooked in transitioning back to the regular program after the pilot period was complete. These checklists, by grade level, were available on Math SharePoint.

At the end of November, the “Criteria by which Math Materials will be Judged” documents were completed by the Pilot Teachers and submitted to the Math Curriculum Committee. The Committee collated the data and made a recommendation to the Superintendent for a single math program for grades K-5. Implementation of the new program will begin in the fall of 2009. Summer training will take place for teachers prior to implementation.

While the math pilot period is over and the recommendation for a math program has been made, the work of the Math Curriculum Committee is hardly complete. The remainder of this report identifies the continuing work of this committee.

Recommendations

Program Selection:

Based on the best available research in professional literature, our criteria for selection, and the results during the pilot period *Everyday Mathematics* published by Wright Group/McGraw Hill, third edition, 2007 has been recommended as the best program for the Nashoba Regional Schools grades K-5. The program has a demonstrated record of providing effective support for teachers to help all students make significant progress in learning mathematics. We also believe that *Everyday Mathematics* is the program that best fits the needs of this school district.

Rationale:

Everyday Mathematics is a balanced program that guides students in an inquiry-based approach to mathematics and provides explicit instruction, guidance, and practice for developing mathematical skill and computational fluency. *Everyday Mathematics* has copious strengths in program design and material support. The most notable strengths are:

- Rigorous and engaging mathematics content
- Clear emphasis on conceptual understanding and computational fluency
- Ample variety of and good quality assessments
- Use of manipulatives to support student learning on a concrete level as they develop conceptual understanding that becomes increasingly abstract
- Frequent and worthwhile homework assignments
- Substantial parent communication through letters, instructions on “Home Links,” and on-line information
- Liberal resources for teacher development in content and pedagogy

Standards and Research:

- The program was developed based on credible research around student learning in mathematics. (Sconiers, 2003)
- Studies show that school districts where *Everyday Mathematics* has been implemented demonstrate verifiable gains in student results on achievement tests. (*ARC Center at the COMAP, 2003*)
- It is the only elementary program to receive a positive rating from the What Works Clearinghouse research review. (*What Works Clearinghouse, 2007*)
- It is aligned with the **Massachusetts Department of Elementary and Secondary Education Curriculum Frameworks**.
- It is aligned with national standards from the National Council of Teachers of Mathematics
- It clearly and explicitly develops the five strands of mathematical proficiency, described in the National Research Council: understanding, computing, applying, reasoning, and engaging.
- The four “process standards” of problem-solving, communication, reasoning, and connections are addressed in every unit of instruction. (*Principals and Standards for School Mathematics, 2000*)

Structure and Background Information:

- The program is carefully constructed to be comprehensive, K-5: it addresses standards, processes, and skills across grade levels, building on each previous year of a student's experience in mathematics.
- The information for teachers depicts the big picture and the details: it references the large concepts, provides explicit student objectives, links the current lesson with past lessons, and forecasts what will come next.
- Each unit is coherently organized around a topic and also includes review of previously learned concepts and skills.
- An explanation of conceptual background for the mathematics of a unit and perspectives on children's learning of the material is available to teachers in the teacher's guide and in a separate resource book.

Instruction and Learning:

- Lessons explicitly link concrete and visual representations of procedures and concepts to symbolic notation and abstract understanding.
- Student engagement is promoted through active learning on a variety of substantive activities, games, and projects related to real world problems.
- Mathematics vocabulary is readily comprehensible and consistently used.
- Practice opportunities are abundant and reinforce prior learning to ensure long-term retention.
- Assessment includes formative and summative strategies to collect data on student learning.
- Homework emphasizes development of computation fluency and, in some opportunities, guides students to apply concepts and skill to real life situations.
- Technology component includes an assessment management system for teachers, on-line access to the student reference manual for families, and practice opportunities for both home and classroom.

Parent Communication:

- Parent letters accompany each unit and are clearly written to explain the math and the instructional procedures in the unit.
- "Home links" are frequent and guide parents to support children.
- Practice opportunities are frequent, can be sent home, and are user-friendly for students and parents.
- On-line component makes *Everyday Mathematics* games available and with directions; the Student Reference Book is available on line for parents and their children to view from home.

The aforementioned strengths of this program, in its newly revised edition, will serve as a strong foundation for mathematics teaching and learning.

Implementation Challenges:

The Math Curriculum Committee is fully aware of implementation challenges that will need to be addressed. The committee will be attentive to all aspects of the implementation process.

Curriculum programs in any subject have strengths and weaknesses and must be judged by the “fit” of the program to a particular school district. A few aspects of *Everyday Mathematics* do not match our criteria for selection at the level we desire. As a result, the Math Curriculum Committee has already begun to address these challenges:

- Managing the wealth of new materials so that teachers are well supported in handling the logistics in the opening months of the new school year.
- Continuing to provide differentiation for advanced and struggling learners in addition to what is included in the program.
- Transitioning students who arrive during the year into the routines and content of the mathematics program.

We will monitor these issues as the year unfolds and address them systematically.

Implementation Plan:

An implementation plan derives strength from the following components in the first year:

1. Purchase of student and teacher materials
2. Dedicated instructional time
3. Specific, sustained teacher support and professional development
4. Timely parent and community communication

1. Funding

The Math Curriculum Committee recommends that sufficient materials be purchased for all classroom teachers and students in grades K-5 with additional sets of materials for special education teachers. Sufficient funds should be allocated for professional development of teachers during the summer of 2009 and ongoing support during the 2009-2010 school year.

2. Instructional Time

The amount of instructional time dedicated to teaching any subject is a crucial variable in student learning. It is the recommendation of the Mathematics Curriculum Committee that the district make a commitment to a minimum of 60 minutes of mathematics instruction daily for grades K-5. When appropriate this instructional time can be divisible into several time segments in any given day. But this should not result in the erosion of the total amount of learning time devoted to mathematics.

3. Teacher Support and Professional Development

The **recommendation** for teacher support and professional development in 2009-2010 includes specialized leadership and coaching along with designated time and structures to focus on mathematics teaching and learning.

- Introduction to the program in the form of a two day training led by consultants from *Everyday Mathematics* will take place in June and or August of 2009. New teacher materials will have arrived by then so teachers will have access to a full set of materials and can make notes for their own use as they become acquainted with all the components of the program. The focus of these two days will be on preparing mathematics instruction for the opening of school, which includes establishing routines, practice opportunities, and assessment strategies that will be utilized all year.
- Ten Early Release afternoons will be set aside for district-wide grade level groups to meet about the mathematics program. The focus will be to explore the mathematics underlying the unit being taught, to discuss instructional decisions, to share results of assessments including student work samples, and to pool strategies for differentiation.
- At least once every other month during the year, grade level team meetings at each school will be designated for discussion of the new mathematics program. The focus will be on managing materials and pacing, handling challenges in student learning, maintaining regular parent communications, and sharing samples of student work.

This level of teacher support and development offers the best possible chance for a robust implementation for the new mathematics program.

4. Parent and Community Communications

When parents are well informed about their child's learning in mathematics, support from home becomes more likely and student progress is enhanced. Parent and community communication about our new K-5 mathematics program will begin in the spring of 2009 and will continue throughout the first year of implementation in the following ways:

- A letter about the committee's recommendation of program and implementation plan will go home to all families in the spring of 2009.
- School Committee presentation will introduce the recommended program and serve as an opportunity to feature some examples of the kind of parent communication that is provided by *Everyday Mathematics*.
- Parent information meetings about the new mathematics program will be held in all three towns in the spring of 2009.
- On line components of the program for parents include the Student Reference Book and Games with instructions and practice opportunities.
- In September, 2009, a letter from the district about the new K-5 mathematics program will go home to families in the first week of school.
- Throughout the year teachers will send parent letters home with students. The letters are provided by the program at the beginning of every unit. Also, "Home-

Links” which comprise one kind of homework format, offer parents some information about the mathematics involved in the homework exercises.

- Parent Q&A night sometime in October – once the program has been in place for two months.
- Later in the fall of 2009, each town will host a *Family Math Night*. Parents will have the opportunity to participate in these stations: *Activities, Displays, Literature Share, and Make & Take*.

Appendices

- Math Curriculum Committee Review process and timeline for the spring of 2008 to the spring of 2009
- Recommendation by the Math Curriculum Committee for supplementing the *Everyday Mathematics* program
- Criteria by Which Math Materials Should be Judged document
- Data Tables
- Resources
- Parent Feedback Letter
Parent Feedback
- Testimonials

NRSD Math Curriculum Review
 Calendar for Adoption of Math Curriculum
 Spring 2008 - Winter 2008

Time Frame	Activity	Parties involved
March-April 2008	Work with Principals- identify teachers who might pilot math materials Fall 2008	Principals
April 2008	Invite K-5 Teachers to pilot math materials for Fall 2008	Pilot Teachers-Suzanne Wintle and Principals
May 2008	Convene Math Curriculum Committee (pilot teachers, K-5 teachers, Administrators, Special Education teachers)	Newly formed Math Curriculum Committee
June 2008	Pilot materials distributed to Pilot Teachers	Math Teachers piloting materials K-5
Summer Academy August 12 - 13	Teacher Training for the Pilot Teachers	Teachers piloting materials K-5
September to early December 2008	Piloting materials- (identify three strands from each series to pilot to facilitate comparisons)	Teachers piloting materials
(early)December 2008	Meeting with all Math Pilot Teachers K-5 & Math Curriculum Committee to share recommendations from pilot teachers	Math Pilot Teachers K-5 Math Curriculum Committee
End of December 2008	Report of Recommendations made to the Superintendent <i>(2009-2010 Roll out K-3 implementation)</i>	Math Curriculum Committee

Supplementing a Math Program

At times teachers have expressed a need to supplement their math programs using additional resources to meet the needs of their diverse student population. The Math Curriculum Committee recommends the following for using supplementary math materials.

Circumstances when it might be **NECESSARY TO SUPPLEMENT** a traditional math program:

- Special Education students, 504, ELL
- Students who compact out of a unit or for acceleration and enrichment
- Math Fact Drill
- Gap in the program
- Gap in individual child's prior knowledge
- Additional repetition of a skill
- To create centers

It is recommended that the Everyday Mathematics program materials be thoroughly explored first before turning to a supplementary list. The Everyday Mathematics website (<http://everydaymath.uchicago.edu/>) also presents a wealth of resource materials. A list of **MATH RESOURCES** found to be valuable for providing for the needs of diverse math students:

Resource	Benefit
Practice and Reinforcement	
Mountain Math-- bulletin board/centers	Practice and Reteaching
Everyday Counts Calendar Math	Morning Meeting
FASTT/MATH or Math Facts in a Flash	Computer fact practice
Otter Creek Instruction	Timed Fact Practice, paper and pencil
Touch Math	Special Ed. K-3 multi-sensory
Mad Minutes	Math Fact Assessment
Math Games-Investigations	Fact Practice
E.T.A. Super Source Resources	Reinforcement
Enrichment or Acceleration	
Math Bags	Family Math Work
Figure This	Student Selected - Math Problem Solving
NCTM Project Based Units	Compacting, enrichment
Math Superstars (Sunshine Math)	Student Selected Enrichment
Project M3 Mentoring Mathematical Minds	Enrichment
Project M2 Mentoring Young Mathematicians	Enrichment

Problem Solving	
T.I.N.S.	Problem Solving Remediation--SPED
Math Forum.org	Problem solving, POW
Evan Moore- Daily Word Problems	Word Problems
Read it, Draw it, Solve it	Word Problems 1-5
AIMS	Math Problem Solving
Problem Solver Program, Creative Pub.	Critical Thinking math problem solving

LIMITS that should be placed on the use of supplementary math resources used in a classroom once the new math program is in place:

It is the recommendation of the Math Curriculum Committee that the *Everyday Mathematics* program must be the primary text and used as the primary program in all K-5 math classrooms within the Nashoba District. Supplementary resources should never supersede the adopted curriculum materials.

Supplementing may be used only when and if...

- The Everyday Mathematics Program Materials have been exhausted and student needs are still not met
- Filling a gap in the curriculum (ex. missing standard)
- Gap in individual child's prior knowledge
- Special Education or ELL specifically recommends another program
- Compacting a student for enrichment/acceleration cannot be accomplished within the program.

- Mathematical connections are clear in the program.

_____ The program connects mathematical ideas and procedures (ex. fractions, decimals, division.)

_____ The program approaches mathematics as a whole.

_____ Concepts and procedures are interrelated through specific instructional activities designed to connect mathematical topics with other content areas and real life situation.

1 2 3 4 5

- The program is comprehensive and includes the Mathematics content emphasized by the Standards at each level.

_____ When checked against the NRSB Standards and Benchmarks documents and Pacing Guides the program is a near perfect fit.

1 2 3 4 5

Category 2----- Organization and Structure: The program is organized into cohesive units, multi-day lessons, and worthwhile tasks.

- The program is organized into units, modules, or other structure so that students have sufficient time to explore and investigate in-depth major mathematical ideas.

_____ The units or modules include lessons, activities, and projects that are multi-day.

_____ The units or modules emphasize connections between mathematical concepts.

_____ The program promotes the attainment of several, rather than just one, mathematical instructional objectives.

_____ The program provides a spiraling curriculum that builds throughout each unit and the entire year.

_____ Calendar, Pacing Guide, and Unit planning is included.

1 2 3 4 5

- The program asks students to work on worthwhile mathematical tasks.

_____ Tasks do not separate mathematical thinking from mathematical concepts or skills.

_____ The tasks capture students' curiosity and invite them to speculate and pursue their hunches.

_____ Many tasks have more than one reasonable solution.

_____ The tasks require that students reason about different strategies and outcomes, weigh the pros and cons of alternatives and pursue particular paths.

_____ Tasks are authentic and provide real world applications.

1 2 3 4 5

- The instructional materials incorporate calculators and computers and other technology into the program as tools for students to use to do mathematics.

_____The program is designed with the expectation that calculators are available (as determined by learning objectives) to all students at all times.

_____The program is designed with the expectation that all students have access to a computer for individual and group work.

1 2 3 4 5

- The program is appropriate for all students.

_____All students are expected to experience math in the broad, rich curriculum described in the K-8 Standards.

_____The program recognizes that students will differ in the vocabulary or notations used, and the complexity of their arguments, etc.

_____Differentiation includes activities for addressing learning styles, remediation and reteaching, enrichment opportunities, resources for E.L.L.

_____Vertical continuity is apparent.

1 2 3 4 5

Category 3----- Student Experiences: The program emphasizes students doing rather than memorizing mathematics. Students are actively involved with mathematics.

- The program is designed so that students are active learners.

_____Students are encouraged to explore and investigate mathematical ideas.

_____Students are expected to read, write, and discuss math.

_____Students are asked to conjecture, test, and build arguments about a conjecture's validity.

_____Students use manipulatives, graphic organizers, and technology during lessons.

_____Students are expected to work on group and individual assignments.

_____Students engage in hands-on explorations.

1 2 3 4 5

- Students are expected to construct their own understanding of mathematics.

_____The program recognizes that students approach a new task with prior knowledge and encourages students to use natural language and informal procedures.

_____Students are expected to discuss and/or tell in writing how they came to their solution or learning.

1 2 3 4 5

- The program asks students to engage in mathematical discourse.

_____The materials ask students to talk with one another, as well as respond to the teacher.

_____Students are expected to make public conjectures and reason with others about mathematics.

1 2 3 4 5

- Students use manipulatives and technology to explore mathematical ideas, model mathematical situations, analyze data, calculate results, and solve problems.

_____Generally, students decide what tools are needed and when to use them.

_____Opportunities are provided for student selection as well as teacher direction and selection for using tools.

1 2 3 4 5

- Students are expected to determine whether they need to calculate to get an exact answer or whether they can find an approximate answer by estimation.

_____Students are expected to choose an appropriate procedure when calculating, whether it is paper-and-pencil, mental calculations, or a calculator.

_____Students learn how to analyze instructional vocabulary for meaning.

_____Students are encouraged to use multiple methods for problem solving.

1 2 3 4 5

- Students are expected to reflect on, make judgments about, and report on their own behavior, performance, and feelings.

_____Students are asked to do self-assessments on selected aspects of their experiences as one method for evaluating student performance.

_____Students are aware of and can chart their own progress towards attaining skills.

1 2 3 4 5

- Student materials are “user friendly.”

_____The format is not visually overwhelming.

_____The program is at the appropriate level for students to read.

_____Textual materials are generally well organized and attractive for students.

1 2 3 4 5

Category 4-----Teacher Support: The instructional materials provide suggestions to teachers to assist them in shifting toward the vision of teaching presented by the Standards.

- The instructional materials provide suggestions to teachers so that in tasks and lessons teachers can help students to:

_____ Work together to make sense of mathematics.
_____ Rely more on themselves to determine if something is mathematically correct.
_____ Reason mathematically.
_____ Learn to conjecture, invent, and solve problems.
_____ Connect mathematics, its ideas, and its applications to other topics within mathematics and to other disciplines.

1 2 3 4 5

- The instructional materials provide suggestions for teachers in initiating and orchestrating mathematical discourse.

_____ The materials suggest questions that elicit, engage, and challenge students' thinking.
_____ Teachers are encouraged to regularly follow students' statements with, "Why?" and "What if?"
_____ Program offers ample dialogue for teachers to follow during lessons.
_____ Both the opening and the closing of lessons are equally strong.

1 2 3 4 5

- The instructional materials provide assistance to teachers to facilitate learning by all students.

_____ Suggestions are provided on how to use a variety of methods so that all students can contribute to the thinking in the class.
_____ Students are expected to express themselves in writing and pictorially, concretely and representationally, as well as orally.
_____ The program encourages teachers to accept and respect the thinking of all students by providing examples of how to probe students' thinking.
_____ Students are encouraged to respect other students' ideas, but not necessarily agree.

1 2 3 4 5

- The instructional materials provide suggestions to teachers for establishing a classroom learning environment focused on sense making. Teachers are provided suggestions on how to:

_____ Structure the time so students can grapple with significant mathematical ideas and problems.
_____ Use physical space and materials in such a way that facilitates students' learning.
_____ Assist students to work together collaboratively, as well as independently.
_____ Math games and hands-on materials are a daily feature of the program.

1 2 3 4 5

- The instructional materials provide suggestions to teachers to help them reflect on what happens in the classroom so that they can adjust their teaching plans.

_____ Teachers are provided suggestions on how to observe, listen to, and gather other information so they can assess and monitor student learning.

_____ Teachers are provided suggestions on how to examine the effect of the task, discourse, and learning environment in promoting students' understanding of mathematics.

1 2 3 4 5

- The instructional materials provide suggestions for how parents can be involved and kept informed about the program.

_____ Parent letters and homework help is provided to support parent involvement.

_____ Goals for tests and assessments are clear for parents to understand.

1 2 3 4 5

- Teachers' guides are "user friendly."

_____ The program is easy for the teacher to follow and offers appropriate guidance in the use and integration of various student materials and technology.

_____ The vocabulary for each lesson is isolated, highlighted or bolded for easy use.

_____ The lesson guide is chronological not in separate books.

1 2 3 4 5

Category 5-----Assessment: The student assessment in the instructional materials provides teachers with information about what their students know and how they think about mathematics.

- Student assessment is integrated into the instructional program.

_____ Assessment activities are similar to learning activities.

_____ Assessment activities examine the extent to which students have integrated and made sense of information.

_____ Assessment activities examine whether students can use mathematics to communicate their ideas.

_____ The program provides opportunities for teachers to use observational and anecdotal assessments.

_____ Pre-assessment opportunities are built into the program.

_____ Materials have clearly stated objectives so that teacher/parent/student all understand what has and has not been learned.

_____ Formal written assessments are organized in a way that is not visually overwhelming.

1 2 3 4 5

- Multiple means of assessment are used, informal as well as formal.

_____ Suggestions are provided for assessing students, individually and in small groups through observations, oral and written work, and student demonstrations.

_____ The use of calculators, computers, and manipulatives (where appropriate) are built into assessment activities.

_____ Assessment is built into the instructional materials as a continuous, dynamic, and often informal process.

_____ Assessment opportunities measure transference of knowledge.

_____ The program provides multiple assessment opportunities to reflect various learning styles.

1 2 3 4 5

- All aspects of mathematical knowledge and how they are interrelated are assessed in the instructional materials.

_____ Conceptual understandings and procedural knowledge are frequently assessed through tests that ask students to apply information about a given concept in novel situations.

_____ Assessment is not of separated or isolated competencies, although one aspect of mathematical knowledge might be emphasized more than another in a particular assessment.

1 2 3 4 5

SubTotals:

Category 1----- Mathematical Content: _____ (25 possible)

Category 2----- Organization and Structure: _____ (20 possible)

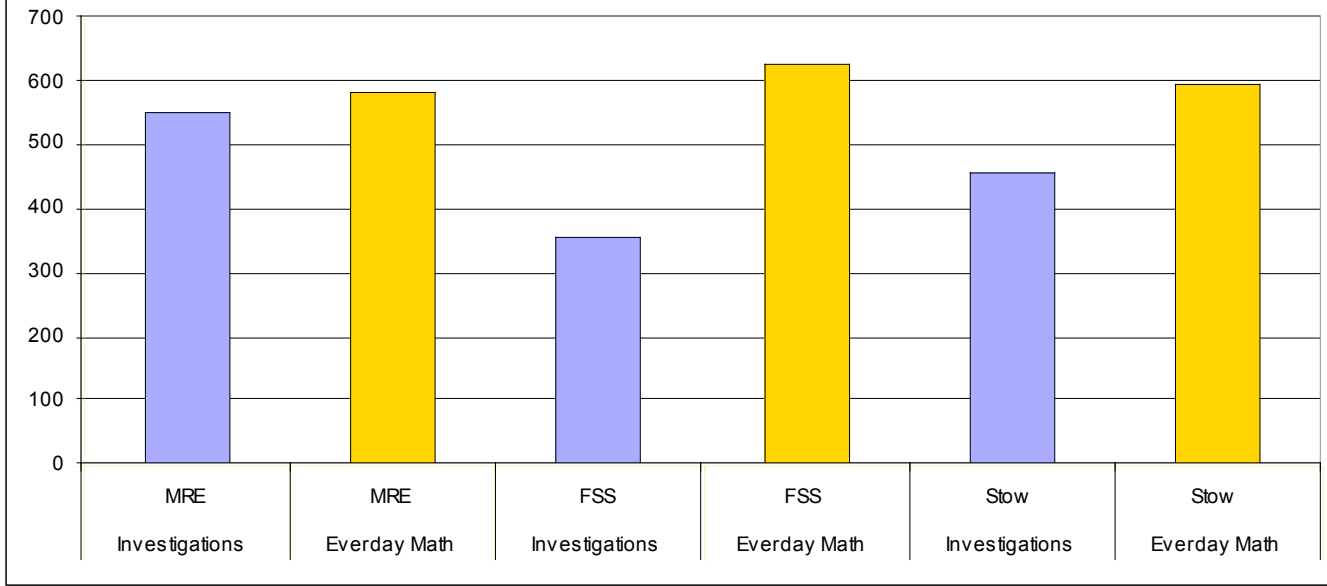
Category 3----- Student Experiences: _____ (35 possible)

Category 4-----Teacher Support: _____ (35 possible)

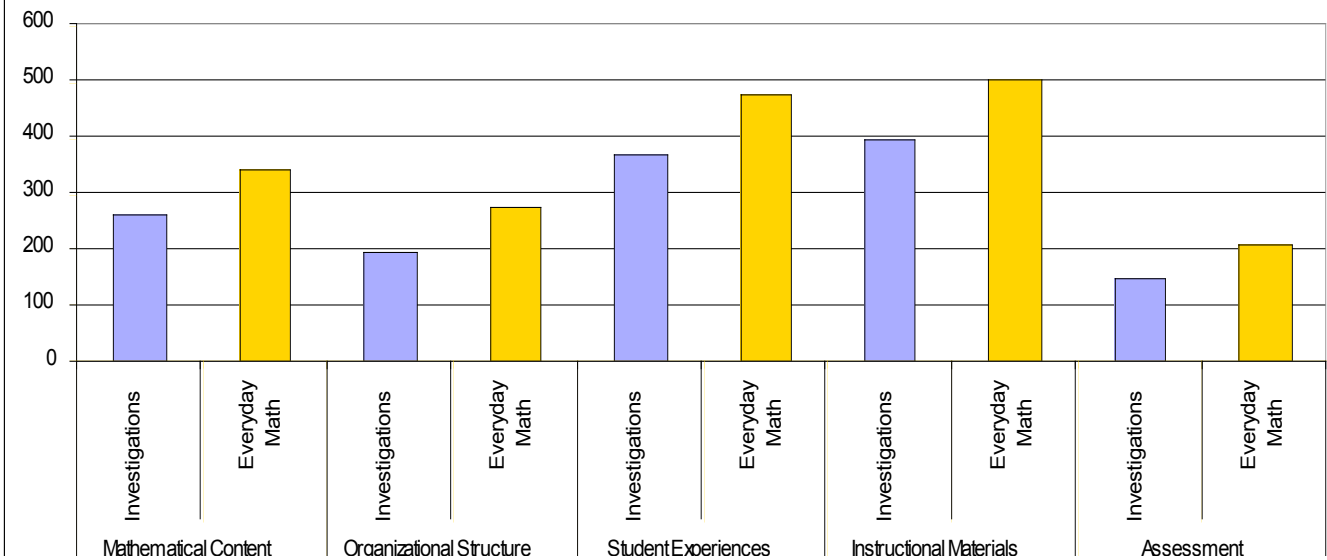
Category 5-----Assessment: _____ (15 possible)

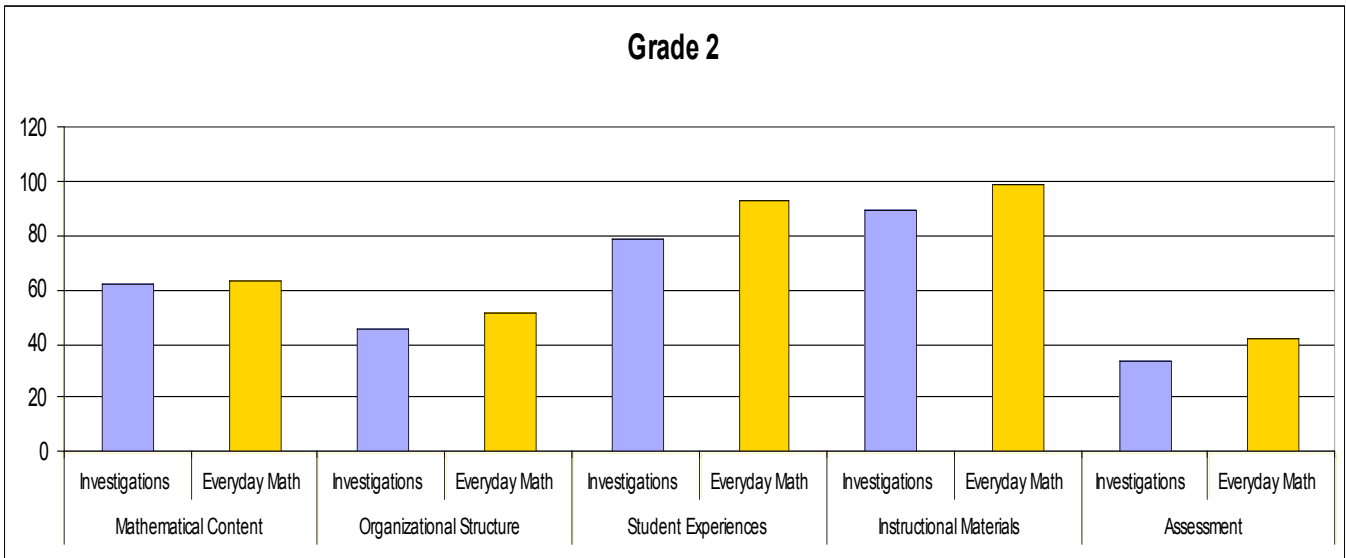
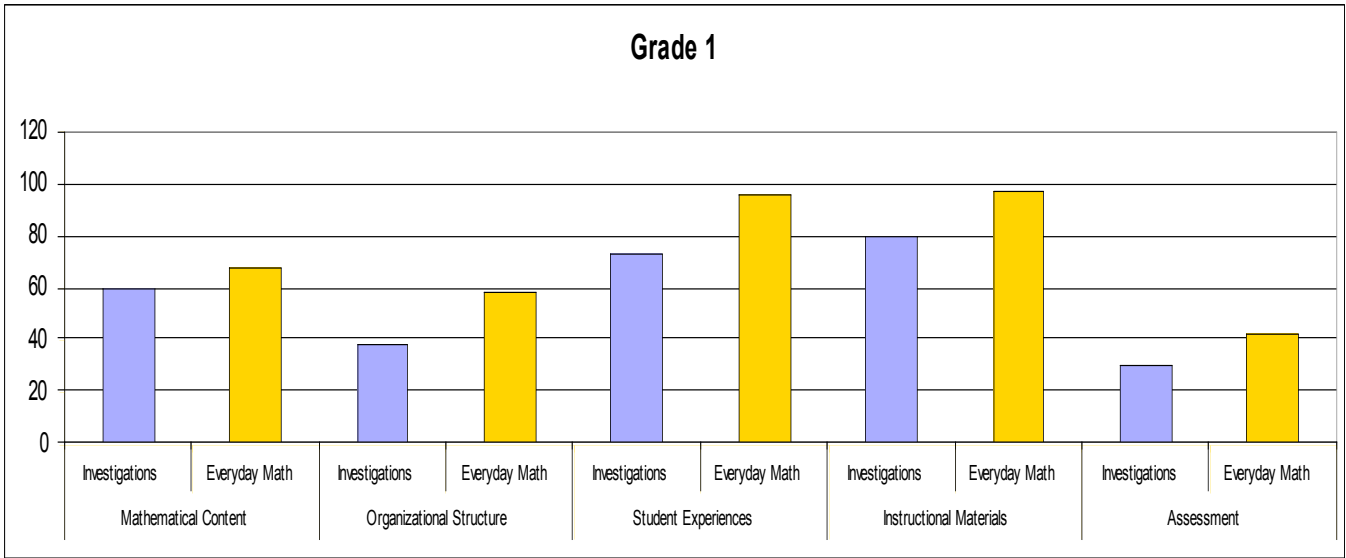
Total points earned: _____ (130 possible)

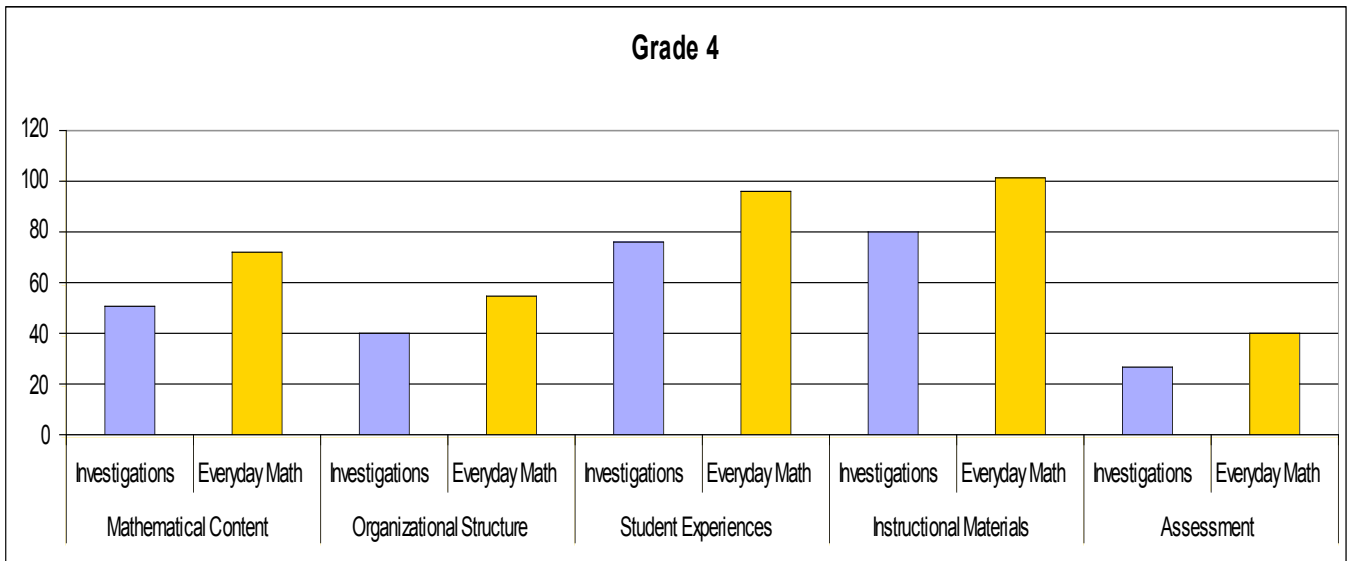
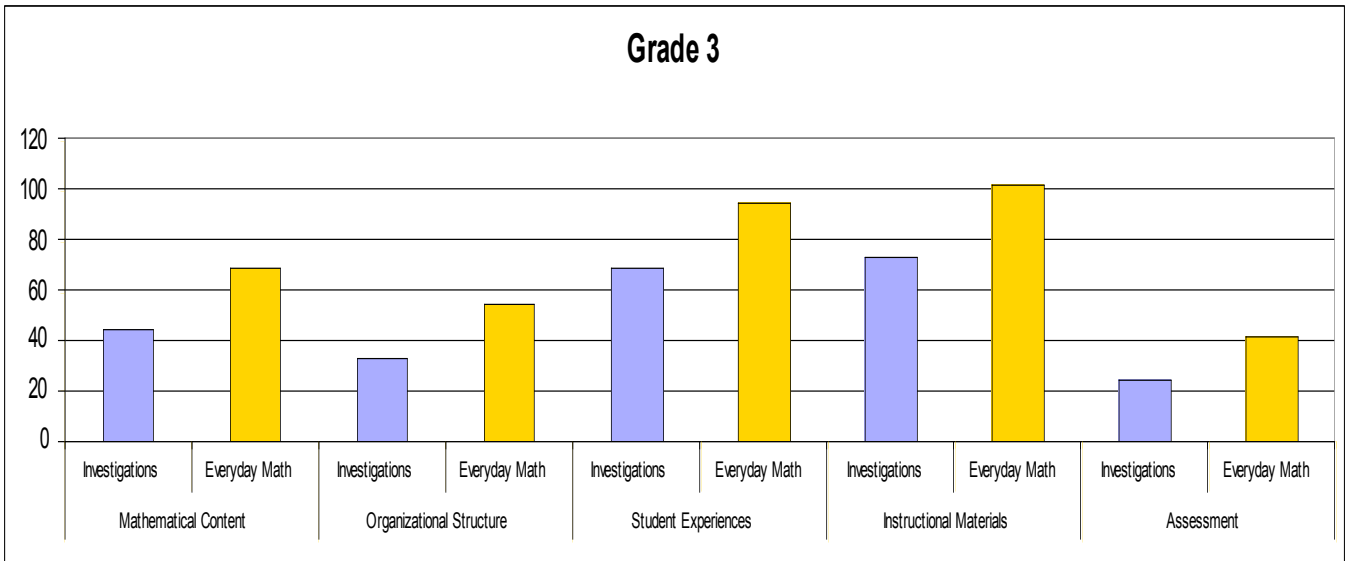
Total Scores by School



Total Score Comparison of Grades 1-5 for Each Category







Resources: Selected Articles, Reports, Books

Educational Leadership, *Making Math Count*, Alexandria, VA: Association for Supervision and Curriculum Development, November, 2007.

Goldsmith, L.T., Mark, J., & Kantrov, I., *Choosing a Standards-Based Mathematics Curriculum*, Newton, MA: Educational Development Center, Inc. 1998.

National Council of Teachers of Mathematics, *Curriculum Focal Points for PreKindergarten through Grade 8 Mathematics*, Reston, VA: National Council of Teachers of Mathematics, 2006.

National Council of Teachers of Mathematics, *Principles and Standards for School Mathematics*, Reston, VA: National Council of Teachers of Mathematics, 2000.

Sconiers, S., *The ARC Center Tri-State Student Achievement Study: Executive Summary*, Lexington, MA: COMAP, 2003.

What Works Clearinghouse, *Report on Study of Elementary School Math*, Institute for Educational Studies, U.S. Department of Education, July 16, 2007. Available at <http://ies.ed.gov/ncee/wwc/>.

January 6, 2009

Dear Parents and Guardians,

In the spring of 2008 the Nashoba Regional School District embarked on a process leading to the selection of core mathematics instructional materials for grades K-5. As a parent or guardian of a student who piloted one of the two programs we are looking for your feedback as we move toward a final recommendation to the Superintendent. The process as it was outlined took three important requirements into consideration.

1. The new mathematics program must align with national, state, and district standards.
2. The new program must take a K-12 view to ensure that students in K-5 are on a pathway for success in the demanding academic environment of the district's middle schools and high school.
3. The new mathematics materials must engage and challenge all students in both math fundamentals and higher levels of mathematics understanding.

The Math Curriculum Committee developed a document adapted from the book *Choosing a Standards Based Mathematics Curriculum*. This document, "Criteria by Which Math Materials Will be Judged" (see reverse side) was developed as a result of readings and discussions of current research in professional literature relating to mathematics. The document identifies five categories to be evaluated; Mathematical Content, Organization and Structure, Student Experiences, Teacher Support, and Assessment. These criteria were further expanded to identify what each area would look like in a mathematics classroom. Pilot Teachers used this expanded form to evaluate the two pilot programs during September, October, and November. Pilot Teachers were asked to keep an anecdotal journal during the pilot period. At the end of November, the "Criteria by which Math Materials will be Judged" documents were completed by the Pilot Teachers, and submitted to and collated by the Math Curriculum Committee.

Now we would like to hear from you. You may have had conversations about math while your child was doing homework over the course of the pilot period. You may have seen work come home. Based on these experiences please direct your attention to Category 3 on the reverse side. I encourage you to give your feedback either to your child's teacher or by emailing me directly at swintle@nrsd.net. It has been an exciting and thorough process and we look forward to gathering more data as we move toward our goal of selecting core mathematics instructional materials for grades K-5. Please return your feedback by January 16, 2009 and note which program, Everyday Math or Investigations, your son/daughter used.

Thank you,

Suzanne Wintle
Department of Teaching and Learning
Curriculum Associate, Math and Science

Criteria by Which Math Materials Will be Judged:
From *Choosing a Standards Based Mathematics Curriculum*

Category 1----- Mathematical Content

- Mathematics as problem solving is built into the program at all levels.
- Mathematics as communication is built into the program at all levels.
- Mathematics as reasoning is built into the program at all levels.
- Mathematical connections are clear in the program.
- The program is comprehensive and includes the Mathematics content emphasized by the Standards at each level.

Category 2----- Organization and Structure

- The program is organized into units, modules, or other structure so that students have sufficient time to explore and investigate in-depth major mathematical ideas.
- The program asks students to work on worthwhile mathematical tasks.
- The instructional materials incorporate calculators and computers and other technology into the program as tools for students to use to do mathematics.
- The program is appropriate for all students.

Category 3----- Student Experiences

- The program is designed so that students are active learners.
- Students are expected to construct their own understanding of mathematics.
- The program asks students to engage in mathematical discourse.
- Students use manipulatives and technology to explore mathematical ideas, model mathematical situations, analyze data, calculate numerical results, and solve problems.
- Students are expected to determine when they need to calculate in a problem and whether they require an exact or approximate answer.
- Students are expected to reflect on, make judgments about, and report on their own behavior, performance, and feelings.

Category 4-----Teacher Support

- The instructional materials provide suggestions to teachers.
- The instructional materials provide suggestions for teachers in initiating and orchestrating mathematical discourse.
- The instructional materials provide assistance to teachers to facilitate learning by all students.
- The instructional materials provide suggestions to teachers for establishing a classroom learning environment focused on sense making.
- The instructional materials provide suggestions to teachers to help them reflect on what happens in the classroom so that they can adjust their teaching plans.
- The instructional materials provide suggestions for how parents can be involved and kept informed about the program.
- Teachers' guides are "user friendly."

Category 5-----Assessment

- Student assessment is integrated into the instructional program.
- Multiple means of assessment are used, informal as well as formal.
- All aspects of mathematical knowledge and how they are interrelated are assessed in the instructional materials.

Parent Feedback and Testimonials

Approximately 600 students participated in the math pilot. Each family of a student who piloted one or the other math program received the Parent Feedback letter. Of those 600 students ten parents responded to the Parent Feedback letter. These ten parents had eight children piloting Everyday Mathematics and seven children piloting Investigations; six parents were from Stow, two from Bolton and one from Lancaster. Feedback varied, and comments included specific observations about homework, assessments, enrichment and remediation. Three parents endorsed Everyday Mathematics. Two parents were neutral, and three parents expressed their opposition to Investigations. Many asked questions and made general comments. These questions and comments will be addressed during the parent forums later in the year.

Anecdotal Testimonials for Everyday Mathematics

Teacher

I love the SRB (Student Reference Book) and MRB (My Reference Book). Students are comfortable using it.

I like the Open Response Question practice.

Assessments, both formative and summative, seem thorough.

The Teacher's Manual is user friendly.

Parents like the nightly homework. They can see what their children are doing in math.

The Kids love the Math Boxes.

Everyday Math gets "stuff" (manipulatives) in their hands early.

The students are starting to talk like mathematicians.

There are lessons for differentiating for enriching as well as for special education.

Assessment is the best part. Individual portfolio pages are available.

Class work is easily documented

Good parent/school communication

For the first time ever I am excited about teaching math. I look forward to it each day.

Parent

The program offers a variety of everyday situations where mathematics is a part of their life.

Homework is regular and there is enough information on the homework sheets and the parent letters so that I can help my child complete homework. I also can see what they are doing in math.

I like the fact that the program does not focus on just one algorithm.

This program seems to challenge children more.

Student

I like the self assessments we do at the end of each unit

I like how we do math "experiments" all the time, with each unit.

The math is hard, but I can do it. I feel like a mathematician.