Easthampton Public Schools
Math Pacing Guide 2013-2014
Grade 4 Draft

Enduring Understandings	Essential Questions	Content Standards	Time Frame	Math Practices, Notes and Resources
Unit 1 Place value and Multi-digit Addition and Subtraction. Resources: MX unit 1, Xtramath, past MCAS questions, Anytime Problems				
• There are many ways to represent the same number. • We can represent problem situations mathematically.	1. How does the position of a digit in a number affect its value? 2. How do we know if an answer is reasonable?	OA.3 NBT.1 NBT .2, NBT.3, NBT.4 MD.2	19 days Beg. To end of Sept.	MP 1 Make sense of Problems MP 2 Reason abstractly MP 6 Use Precision MP 7 Make use of structure Assess facility with addition and subtraction facts. Use Xtramath to improve fluency for some students and provide or refer for short-term intervention on fact strategies. Assess fact fluency for multiplication.
Unit 1a Factors, Multiples and Multiplicative Comparisons **Resource: MX Unit 4 Lessons 1-**				
• Some numbers have many factors • There are several ways to compare quantities.	1. What are composite and prime numbers? 2. How can we make comparisons using multiplication?	OA.1, OA.2, OA.4, OA.5	lessons 8 days Beg. Oct. to Mid Oct.	MP 1 Make sense of Problems MP 2 Reason abstractly MP 3 Construct Viable arguments MP 6 Use Precision MP 7 Make use of structure Notes: Factors, Multiples, Multiplicative comparison have been moved from Unit 4 to provide as they review one digit multiplication and the Mult/Div relationship.

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Unit 2 Multiplication with Whole Numbers **Resources MX Unit 2**				
• There are many methods for multiplying larger numbers. • Numbers can be broken into smaller parts to make multiplication easier.	3. How does place value help us multiply larger numbers? 4. When do we need an exact answer to a problem verses an estimate?	. OA.1 OA.3 NBT.1 NBT.2 NBT.3 NBT.5 MD.2.	16 lessons 20 days Beg Oct. to Thanks-giving	MP.2 Reason abstractly MP 6 Attend to precision MP 7 Make use of structure Notes: Include daily fact fluency with multiplication. Once this is secure start division. This can be individualized. It is not necessary to spend a long time on each strategy presented in the program. Allow a time initially for student to invent strategies. Encourage them to use strategies that make sense to them. Do Cover the AREA MODEL. Relate it to what they know about using multiplication to find area. Partial product work well with one digit multipliers but can be confusing in 2 digit by 2 digit methods.

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Unit 3 Division with Whole numbers Resources MX Unit 3				
• Division is breaking a total amount into equal groups or parts. • Some number cannot be divided equally into whole numbers.	1. How is division related to multiplication? 2. How can a remainder affect the answer in a division word problem?	OA.3 NBT. 3 NBT.6	11 lessons 17 days late Nov. thru Dec.	MP 1 Make sense of problems, judge the reasonableness of an answer. MP.2 Reason abstractly MP 3 Construct viable arguments MP 6 Attend to precision MP 7,8 Make use of structure and repeated reasoning. Notes: Use the "M&M strategy" to introduce multi-digit division but do not encourage students to use it as an ongoing computation method (unless specific students require it). All methods introduced in the programs promote getting as close as possible with each steps, requiring less steps. We should encourage this. Students who are not fluency with multi. facts may need a chart in order to focus on learning the procedure. Some of the strategies in the book are more effective than others. Not all need be explored. Interpreting remainder is a very important piece of this unit. Sometimes the remainder alone is the answer! Encourage students to underline the question in a problem and construct a frame for the answer with the correct label.

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Unit 4 Equations and Word Problems Resources: MX Unit 4 lessons -				
• To solve problems you need to make sense of them. • Some problem solutions require many steps.	1. How do you understand and solve multi-step problems?	OA.1 OA.2 OA.3 OA.4 OA.5 NBT 4 NBT.6 MD.2	4 Days 3 lessons Beg. January about one week	MP 1 Make sense of problems MP 2 Reason abstractly MP 4 Model with mathematics. MP 3 Construct viable arguments. MP 4 Model with mathematics Note: This is the remainder of Unit 4.
MIDYEAR TEST AND FOLLOW UP Mid January				
Unit 5 Measurement				
• There are many ways to measure items.	1. How do units affect measurement? 2. How do we use area and perimeter measurement in our lives?	MD.1 MD.2 MD,.3 MD.4	8 lessons 13 days early. Jan through end Jan.	MP 1 Make sense of problems MP 4 Model with mathematics. MP 5 Use tools appropriately. MP6 Attend to precision. MP 7 Make use of structure. Notes: This unit introduces many systems of measurement in rapid succession. **We may want to break this unit up to avoid confusion of units and systems.** Emphasis is on conversions from larger to smaller units. There are only 2 lessons on time and elapsed time. More may be needed. Area and perimeter problems require thinking and drawing models.

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Unit 6 Fraction Concepts and Operations MX Unit 6				
• Fractions can represent whole numbers and fractional parts of whole numbers. • Fraction can be represented in many forms. • Models can help us understand fractions.	1. How can fractions be decomposed into unit fractions suing addition and multiplication? 2. How are improper fractions and mixed numbers related? 3. How do we use operations with fractions?	NF.2 NF.3 NF.3a,b,c,d NF.4 NF.4a, b, c MD.2 MD.4	10 lessons 16 days Beg Feb.–Feb vacation	1. Make sense of problems. 2. Reason abstractly. 3. Construct viable arguments. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure.
Unit 7 Fractions and Decimals MX Unit 7				
• Equivalent fractions represent the same value. • We can compare fractions by using models, benchmarks and equivalent fractions. • Decimals can be used represent fractions. • Decimals are an extension of our base ten number system.	1. What are equivalent fractions? 2. How can models help us compare fractions? 3. How are decimals like fractions? How are they different? How do we read, write and compare decimals?	NF.1 NF.2 NF.5 NF.6 NF.7 MD.2 MD.4	13 lessons 19 days End Feb. thru March	2. Reason abstractly and quantitatively. 3. Construct viable arguments. 4. Model with mathematics. 6. Attend to precision. 7. Look for and make use of structure.

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Unit 8 Geometry				
1. Angle size is an important aspect of Geometry and working with shapes. 2. Angles are measured as a part of a circular rotation. 3. Quadrilaterals are classified by their sides and angles. **4.** Symmetry is mirror image.	• What are angles? • How do we measure angles? • How do quadrilaterals differ from each other? • What is symmetry?	OA.5 MD.5 MD.5a, b MD.6 MD.7 G.1 G.2 G.3	12 lessons 19 days April thru early May	2. Reason abstractly and quantitatively. 3. Construct viable arguments. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision (language). 7. Look for and make use of structure. 8. Look for an express regularity in repeated reasoning.
	MCAS TESTING, REVIEW AND END OF YEAR TESTING			

End of First Year Evaluation - It was felt that program did a good job of covering the new Frameworks. However, we all agree we need to increase our student's ability to engage with the mathematical practices to be more successful at problem solving. We have made some minor changes to the scope and sequence of the program. In order to have students review multiplication facts and the multiplication and division relationship, we have moved sections of Unit 4 on factoring and multiplicative comparison to come before Unit 2, Multi-digit multiplication.

Next Steps: Unit 5, Measurement may need some rethinking. The unit covers units of time, length, capacity and mass in both standards and metric systems. It might be a good idea to come up with some authentic Science or personal data related projects involving measurement with specific units to increase student familiarity with these units and conversions. For example: keeping a chart of sunrise and sunset times to learn to compute elapsed time.