

# Math - Grade 5: Unit 1 - Building a Community of Mathematicians

## UNIT OVERVIEW

### GENERAL INFORMATION

<b>Terms:</b>		<b>Duration:</b>	24.0 Day(s)	<b>Start Date:</b>	08-26-2015	<b>Finish Date:</b>	09-29-2015
<b>Subjects:</b>	Mathematics	<b>Interdisciplinary Approaches:</b>		<b>Course s:</b>	ELEM-MA-Mathematics - Grade 5		
<b>Year Level(s):</b>	5	<b>Unit No.</b>	MPSDC-024558				
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### UNIT FOCUS

This launch unit is designed to introduce students to the routines of math workshop and to the rigor of the Connecticut Core Standards. The unit allows for reteaching to mastery and time to establish routines necessary for building a classroom community. Students will learn to follow agreed upon rules for speaking and listening as they begin to build the stamina needed to endure the practice time of math workshop.

This unit is not designed to go in-depth with content standards. The purpose is to familiarize students with the routines and procedures that will be necessary in order for students to meet successfully the Connecticut Core Standards and actively participate in math workshop. Within this unit, you will assess students using the District Benchmark Assessments. Subsequent units will include more thorough instruction on the standards.

### PRIOR LEARNINGS / CONNECTIONS

The creation of a numeracy environment is the foundation of math workshop. It is important to invest time and attention in creating supportive classroom communities. Students should connect prior experiences with math workshop, including but not limited to:

**Classroom Community:** Teachers and students work collaboratively in an atmosphere of mutual respect; students are motivated to do their best work and feel safe to take risks. The class functions as a learning community where each student's learning is important, i.e., students take responsibility for learning and support the learning of others.

**Physical environment:** Purposeful arrangement of the environment facilitates development of a numeracy environment. Students have independent access to resources, and the arrangement of the room facilitates collaboration.

**Predictable structure:** Math workshop takes place in a 60-minute session. Maintenance of a predictable structure is essential if students are to become self-managing.

### ADDITIONAL INFORMATION

#### RESOURCES

No.	Description	Files / Links
RES1	Number Talks - Number Talks: Helping Children Build Mental Math and Computation Strategies, Sherry Parrish	
RES2	Math Workshop in Action - Math Workshop in Action by Dr. Nicki Newton	
RES3	Guided Math in Action by Dr. Nicki Newton - Refer to Dr. Nicki Newton's Guided Math in Action, Ch 9 - "The First 20 Days of Math Workshop: Setting the Stage for Effective Guided Math Groups"	
RES4	North Carolina Resource -	<a href="http://3-5cctask.ncdpi.wikispaces.net/4.OA.1-4.OA.3">http://3-5cctask.ncdpi.wikispaces.net/4.OA.1-4.OA.3</a> (link)
RES5	Fastt Math -	
RES6	Georgia Resources - Whole Numbers - (Number Scramble, Ordering and Comparing Numbers, Estimation as a check, Reality Checking, It's in the Numbers)	<a href="https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th-Math-Unit-1.pdf">https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th-Math-Unit-1.pdf</a> (link)
RES7	K-5 Math Teaching Resources - Number activities	<a href="http://www.k-">http://www.k-</a>

		<a href="http://5mathteachingresources.com/4th-grade-number-activities.html">5mathteachingresources.com/4th-grade-number-activities.html</a> (link)
RES8	enVision 2.0 - Math Practices - (Student book pages F20-F28, Teacher guide pages F19-F28) to be introduced as appropriate when discussing What good Mathematicians do?	
RES9	First 20 Days by Dr. Newton - Revised Chapter 9 (Courtesy of Dr. Newton)	<a href="https://drive.google.com/a/mpspride.org/file/d/0B1u-SudncFHQRDBIZW1xemRXVHM/view?usp=sharing">https://drive.google.com/a/mpspride.org/file/d/0B1u-SudncFHQRDBIZW1xemRXVHM/view?usp=sharing</a> (link)
RES10	Teaching Student Centered Math K-3 (Van de Walle) - Blackline Masters	<a href="http://www.ablongman.com/vandewalleseries/Vol_1_BLM_PDFs/V1%20All%20BLMs.pdf">http://www.ablongman.com/vandewalleseries/Vol_1_BLM_PDFs/V1%20All%20BLMs.pdf</a> (link)
RES11	Renerek Activities - K-5 Math Resource Page	<a href="http://www.k-5mathteachingresources.com/Rekenrek.html">http://www.k-5mathteachingresources.com/Rekenrek.html</a> (link)
RES12	Mental Math Activities - K-5 Math Resource Page	<a href="http://www.k-5mathteachingresources.com/mental-math.html">http://www.k-5mathteachingresources.com/mental-math.html</a> (link)
RES13	Common Core FlipBook -	<a href="http://www.azed.gov/azccrs/files/2013/11/5th-flipbookedited2.pdf">http://www.azed.gov/azccrs/files/2013/11/5th-flipbookedited2.pdf</a> (link)
RES14	K-8 Publishers' Criteria for CCSS for Math -	<a href="http://www.corestandards.org/assets/Math_Publishers_Criteria_K-8_Summer%202012_FINAL.pdf">http://www.corestandards.org/assets/Math_Publishers_Criteria_K-8_Summer%202012_FINAL.pdf</a> (link)
RES15	CCSS Standards for Mathematical Practice -	<a href="http://www.corestandards.org/Math/Practice/">http://www.corestandards.org/Math/Practice/</a> (link)
RES16	CCSS Progressions -	<a href="http://ime.math.arizona.edu/progressions/">http://ime.math.arizona.edu/progressions/</a> (link)
RES17	Math Look Fors -	<a href="https://drive.google.com/a/mpspride.org/file/d/0B6yqp2quUBXKYlc1NEZOS1dvZ3c/view?usp=sharing">https://drive.google.com/a/mpspride.org/file/d/0B6yqp2quUBXKYlc1NEZOS1dvZ3c/view?usp=sharing</a> (link)
RES18	CCSS Math Focus K-8 -	<a href="https://drive.google.com/a/mpspride.org/file/d/0B6yqp2quUBXKRIM1a2MteHFxaTQ/view?usp=sharing">https://drive.google.com/a/mpspride.org/file/d/0B6yqp2quUBXKRIM1a2MteHFxaTQ/view?usp=sharing</a> (link)
RES19	UConn - Bridging Practices Among CT Math Educators -	<a href="http://bridges.education.uconn.edu/repository">http://bridges.education.uconn.edu/repository</a> (link)
RES20	UConn - Bridging Practices Among CT Math Educators -	<a href="http://bridges.education.uconn.edu/repository">http://bridges.education.uconn.edu/repository</a> (link)
RES21	Year Long Curriculum Map -	<a href="https://docs.google.com/document/d/11a5-dOOjilK1TmyhbDfUJsnWRZFx_wxQcATNYzyXOK/edit?usp=sharing">https://docs.google.com/document/d/11a5-dOOjilK1TmyhbDfUJsnWRZFx_wxQcATNYzyXOK/edit?usp=sharing</a> (link)
<b>COMMENTS / NOTES</b>		

## STAGE 1: DESIRED RESULTS - KEY UNDERSTANDINGS

ESTABLISHED GOALS	TRANSFER		
<p><b>Curriculum</b>  <b>Common Core Standards</b>  <i>Mathematics : 5</i>                      2000313 Mathematical Practices  <i>CCSS.MATH.MP.1 Make sense of problems and persevere in solving them.</i></p> <ul style="list-style-type: none"> <li>• CCSS.MATH.MP.8 Look for and express regularity in repeated reasoning.</li> <li>• CCSS.MATH.MP.4 Model with mathematics.</li> <li>• CCSS.MATH.MP.5 Use appropriate tools strategically.</li> <li>• CCSS.MATH.MP.7 Look for and make use of structure.</li> <li>• CCSS.MATH.MP.2 Reason abstractly and quantitatively.</li> <li>• CCSS.MATH.MP.3 Construct viable arguments and critique the reasoning of others.</li> <li>• CCSS.MATH.MP.6 Attend to precision.</li> </ul> <p><i>Mathematics : 4</i></p> <ul style="list-style-type: none"> <li>• 920341 Number &amp; Operations in Base Ten</li> </ul> <p><b>Other Goals</b>  <b>Learning Personalized</b></p> <ul style="list-style-type: none"> <li>• Element 3: Mindsets</li> </ul>	<p><i>Students will be able to independently use their learning to ...</i></p>		
	<p>T1                      Students will be able to independently use their learning to interpret and persevere in solving mathematical problems using strategic thinking and expressing answers with a degree of precision appropriate for the problem context.</p> <p>T2                      Students will be able to independently use their learning to express appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others, and attending to precision when making mathematical statements.</p>	<p><b>MEANING</b></p>	
	<p><b>UNDERSTANDINGS</b></p>	<p><b>ESSENTIAL QUESTIONS</b></p>	
<p><i>Students will understand that ...</i></p> <p>U1                      Mathematicians have strategies, routines and responsibilities in math workshop that contribute to a successful math community.</p> <p>U2                      A strong math community is built through sharing and respecting others' ideas and abilities.</p> <p>U3                      Mathematicians use the 8 Mathematical Practices.</p> <p>U4                      Mathematicians talk and listen to each other, ask themselves and each other questions about mathematical situations, use specific math words to talk about their thinking, and communicate their thinking through writing, pictures, and/or conversations.</p> <p>U5                      Problem-solvers perform multi-digit arithmetic using place value understanding and properties of operations.</p> <p>U6                      Place value can be generalized for multi-digit whole numbers.</p> <p>U7                      The inverse relationship of addition and subtraction or multiplication and division can be used to calculate whole</p>	<p><i>Students will keep considering ...</i></p> <p>Q1                      How do mathematicians work together during Math Workshop?</p> <p>Q2                      How do good mathematicians communicate their ideas?</p>		

number operations.  
U8  
The area model can be used to solve multiplication problems and show understanding of the algorithm.

**ACQUISITION OF KNOWLEDGE AND SKILL**

**KNOWLEDGE**

**SKILLS**

*Students will know ...*

*Students will be skilled at ...*

K1  
What is a math community.  
K2  
The expectations for Math workshop, including rules, rewards and consequences.  
K3  
What good mathematicians do, i.e., use tools, strategies, communicate thinking, etc.  
K4  
Place value through 1,000,000.  
K5  
Basic properties of operations.  
K6  
Multi-digit addition and subtraction.  
K7  
Various strategies to add and subtract multi-digit numbers fluently.  
K8  
Strategies to multiply and divide basic math facts.  
K9  
Inverse relationships of operations.  
K10  
Models to illustrate various operations  
K11  
Vocabulary:

- place value
- decimal
- hundred thousands
- ten thousands

S1  
Following rules and routines during Math Workshop.  
S2  
Demonstrating behaviors/habits of mind consistent with the 8 Mathematical Practices.  
S3  
Communicating their mathematical thinking orally and in writing -- using words, pictures, and math symbols (e.g. explain calculation using equations, rectangular arrays and/or area models).  
S4  
Problem solving using multiple strategies.  
S5  
Writing whole numbers in standard, expanded and word form.  
S6  
Stating the value of any digit within a multi-digit number through 1,000,000.  
S7  
Reading and writing numerals between 1,000 and 1,000,000.  
S8  
Rounding to any place up to 1,000,000.  
S9  
Comparing two multi-digit numbers based on meanings of the digits in each place using  $>$ ,  $=$ ,  $<$  symbols.  
S10  
Solving multiplication and division basic math facts fluently.  
S11  
Adding and subtracting multi-digit numbers using standard algorithm, (including money amounts).  
S12  
Multiplying using strategies based on place value and

	<ul style="list-style-type: none"><li>• thousands</li><li>• hundreds</li><li>• tens</li><li>• ones</li><li>• digit</li><li>• base-ten</li><li>• numeral</li><li>• array</li><li>• distributive property</li><li>• partial products</li><li>• area model</li><li>• multiplication</li><li>• division</li><li>• factor</li><li>• product</li><li>• remainder</li><li>• quotient</li><li>• divisor</li><li>• dividend</li><li>• period</li><li>• inverse relationship</li></ul>	properties of operations (up to four-digit by one-digit and two-digit by two-digit) using base-10 blocks, arrays and area model.
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**STAGE 2: ASSESSMENT EVIDENCE**

**PERFORMANCE TASK(S)**

<b>Coding</b>	<b>Code</b>	<b>Evaluative Criteria</b>	<b>Description</b>
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**OTHER EVIDENCE**

<b>Coding</b>	<b>Code</b>	<b>Evaluative Criteria</b>	<b>Description</b>
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## STAGE 3: LEARNING PLAN

### PRE-ASSESSMENTS

#### District Benchmark Assessment (September 8 - October 6)

Coding	Code	Description of Learning Activity	Extension / Modification
	LE1	<p><b>Duration:</b> 1.0 Week(s)</p> <p><b>Activity:</b> <u>Week 1: (4.NBT.A.2, 4.NBT.A.3, 4.NBT.B.4)</u> Students will review place value with whole numbers (expanded form, standard form, and word form) and use their understanding of place value to review comparing and rounding multi-digit whole numbers. Students will also review adding and subtracting multi-digit whole numbers and fluency strategies for addition and subtraction. <a href="https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th-Math-Unit-1.pdf">https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th-Math-Unit-1.pdf</a> <a href="http://www.k-5mathteachingresources.com/4th-grade-...">http://www.k-5mathteachingresources.com/4th-grade-...</a> <i>The basic math fact assessments for all four operations should be administered by the end of week 1.</i></p>	
	LE2	<p><b>Duration:</b> 1.0 Week(s)</p> <p><b>Activity:</b> <u>Week 2: (4.NBT.A.2, 4.NBT.B.4)</u> Students will continue to review adding and subtracting multi-digit whole numbers with a focus on applying the standard algorithm. Students will continue to review adding and subtracting multi-digit whole numbers mentally and fluently by using strategies based on the properties of operations, number relationships and place value understanding. <a href="http://www.k-5mathteachingresources.com/4th-grade-...">http://www.k-5mathteachingresources.com/4th-grade-...</a> Envision Math 2.0 - Math Practices (Student book pages F20-F28, Teacher guide pages F19-F28) to be introduced as appropriate when discussing What good Mathematicians do. <i>Number Talks: Helping Children Build Mental Math and Computation Strategies, Sherry Parrish</i></p>	
	LE3	<p><b>Duration:</b> 1.0 Week(s)</p> <p><b>Activity:</b> <u>Weeks 3: (4.NBT.A.2, 4.NBT.B.5)</u> Students will review the inverse relationship between multiplication and division by using arrays and equations in order to strengthen their understanding of multiplication and division basic math facts. <i>This objective is part of the week's study but is not the main focus.</i> Students will review multiplying 3-digit numbers by 1-digit numbers and 2-digit numbers by 2-digit numbers using properties of operations (emphasis on the <i>distributive property</i>) and place value understanding. Students will explain their calculations by using equations, arrays, and the area model. Students should also review interpreting multiplication as a comparison (4.OA.1).</p>	

	<p><a href="http://3-5cctask.ncdpi.wikispaces.net/4.OA.1-4.OA...">http://3-5cctask.ncdpi.wikispaces.net/4.OA.1-4.OA...</a>  <a href="http://www.k-5mathteachingresources.com/4th-grade-...">http://www.k-5mathteachingresources.com/4th-grade-...</a>  Envision Math 2.0 - Math Practices (Student book pages F20-F28, Teacher guide pages F19-F28) to be introduced as appropriate when discussing What good Mathematicians do.</p>	
LE4	<p><b>Duration:</b> 1.0 Week(s)  <b>Activity:</b>  Week 4: ( <a href="#">4.NBT.A.2</a>, <a href="#">4.NBT.A.3</a>, <a href="#">4.NBT.B.4</a>, <a href="#">4.NBT.B.5</a>)  Students will continue to review multi-digit multiplication and practice solving multi-step word problems with all four operations.  <a href="http://www.k-5mathteachingresources.com/4th-grade-...">http://www.k-5mathteachingresources.com/4th-grade-...</a>  Envision Math 2.0 - Math Practices (Student book pages F20-F28, Teacher guide pages F19-F28) to be introduced as appropriate when discussing What good Mathematicians do.</p>	