

Hardin County Schools Combined Curriculum Guide
Math – Third Grade
DRAFT

Big Idea	NUMBER PROPERTIES AND OPERATIONS			
	Whole number sense and addition and subtraction are key concepts and skills developed in early childhood. Students build on their number sense and counting sense to develop multiplication and division. They move flexibly and fluently through basic number facts, operations and representations. Their understanding of the base-10 number system expands to include decimals. They examine various meanings and models of fractions. They explore data, perform measurements and examine patterns as part of the development process for number and operations, using other mathematics strands to enrich number. Elementary number encompasses computational fluency with whole numbers, relationships between decimals and fractions and techniques for reasonable estimations.			
Academic Expectations	2.7 Students understand number concepts and use numbers appropriately and accurately. 2.8 Students understand various mathematical procedures and use them appropriately and accurately.			
POS Understandings	MA-P-NPO-U-1 Students will understand that numbers, ways of representing numbers, relationships between numbers and number systems are means of representing real-world quantities.	9 Weeks Taught	1 2 3 4	
POS Skills & Concepts	Date(s) Taught	Core Content for Assessment	Objective	Essential Vocabulary

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<p>MA-P-NPO-S-NS1 Students will read, write, count and model whole numbers 0-10,000, developing an understanding of place value for ones, tens, hundreds, thousands and ten thousands.</p> <p>MA-P-NPO-S-NS2 Students will apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to describe and compare whole numbers and fractions (e.g., halves, thirds, fourths) in mathematical and real-world problems.</p> <p>MA-P-NPO-S-NS3 Students will order groups of objects according to quantity.</p> <p>MA-P-NPO-S-NO1 Students will develop an understanding of the concepts of addition and subtraction using physical objects and concrete materials.</p> <p>MA-P-NPO-S-NO2 Students will explore and develop an understanding of the concepts of multiplication and division using physical models.</p> <p>MA-P-NPO-S-PNO1 Students will explore, develop and use the concepts of multiples.</p> <p>MA-P-NPO-S-PNO2 Students will skip-count forwards and backwards by 2s, 5s, 10s and 100s, using manipulatives, mental math and written and electronic means to communicate understanding.</p> <p>MA-P-NPO-S-PNO3 Students will explore, develop and use the concepts of odd and even numbers.</p> <p>MA-P-NPO-S-PNO4 Students will explore and use of properties of numbers for written and mental computation (e.g., $4 + 7 + 6$ could be mentally regrouped as $4 + 6 + 7$ using the commutative property of addition).</p>		<p>MA-EP-1.1.1 Students will:</p> <ul style="list-style-type: none"> • apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to describe whole numbers (0 to 9,999): • apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe fractions (halves, thirds, fourths); • apply these numbers to represent real-world problems and • explain how the base 10 number system relates to place value. <p style="text-align: right;">DOK 2</p> <p><i>MA-EP-1.1.2</i> <i>Students will read, write and rename whole numbers (0 to 9,999) and apply to real-world and mathematical problems.</i></p> <p>MA-EP-1.1.3 Students will compare (<, >, =) and order whole numbers to whole numbers, decimals to decimals (as money only) and fractions to fractions (limited to pictorial representations)</p> <p style="text-align: right;">DOK 2</p> <p><i>MA-EP-1.3.2</i> <i>Students will skip-count forward and backward by 2s, 5s, 10s and 100s.</i></p> <p>MA-EP-1.5.1 Students will identify and provide examples of odd numbers, even numbers and multiples of a number, and will apply these numbers to solve real-world problems.</p> <p style="text-align: right;">DOK 2</p>	<p>I can write whole numbers in expanded form.</p> <p>I can use place value (Base 10 blocks, number lines, symbols) to order, compare, and describe whole numbers to 999.</p> <p>I can demonstrate and explain how the Base 10 number system relates to place value.</p> <p>I can use whole numbers when solving real-world problems.</p> <p>I can read, write, and rename whole numbers to 9,999.</p> <p>I can use the <,>,or = to compare numbers.</p> <p>I can count forward by 2's, 5's and 10's to 100.</p> <p>I can use odd and even numbers to solve real world problems.</p> <p>I can identify and give examples of odd and even numbers.</p>	<p>Expanded Form</p> <p>Whole numbers</p> <p>Place value</p> <p>Base 10</p> <p>Compare Order <, >, =</p> <p>Odd Even</p>
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POS Understandings	MA-P-NPO-U-2 Students will understand that meanings of and relationships among operations provide tools necessary to solve realistic problems encountered in everyday life.		9 Weeks Taught	1 2 3 4
POS Skills & Concepts	Date(s) Taught	Core Content for Assessment	Objective	Essential Vocabulary
<p>MA-P-NPO-S-NS4 Students will order, compare and understand the relative magnitude of numbers from 0-10,000, using the symbols <, >, =, including the use of physical and visual models for smaller numbers.</p> <p>MA-P-NPO-S-NS5 Students will develop beginning fractional concepts (e.g., dividing an object into equal parts and naming the equal parts [e.g., halves, thirds, fourths]).</p> <p>MA-P-NPO-S-NS6 Students will expand fraction concepts (e.g., whole to part and part to whole; one-half is larger than one-fourth).</p> <p>MA-P-NPO-S-NS7 Students will be introduced to and use decimals to represent money.</p> <p>MA-P-NPO-S-NS7 Students will be introduced to and use decimals to represent money.</p>		<p>MA-EP-1.3.1 Students will analyze real-world situations to identify the appropriate mathematical operations, and will apply operations to solve real-world problems with the following constraints:</p> <ul style="list-style-type: none"> • add and subtract whole numbers with three digits or less; • multiply whole numbers of 10 or less; • add and subtract fractions with like denominators less than or equal to four and • add and subtract decimals related to money. <p>DOK 2</p>	<p>I can recite or write my addition and subtraction fact families through 18.</p> <p>I can use addition and subtraction facts to 18 to solve real world problems.</p>	<p>Addition Subtraction</p> <p>Digits</p> <p>Facts</p> <p>Sum</p> <p>Addend</p>

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<p>MA-P-NPO-S-NO3 Students will develop part-whole relations using numbers (e.g., $3 + 2 = 5$, $1 + 4 = 5$).</p> <p>MA-P-NPO-S-NO4 Students will explore and solve two-digit addition and subtraction problems through the use of manipulatives.</p> <p>MA-P-NPO-S-NO5 Students will explore and develop factor-factor-product (e.g., $2 \times 3 = 6$) using manipulatives. (e.g., hundreds charts, base-10 blocks, arrays).</p> <p>MA-P-NPO-S-NO6 Students will multiply whole numbers through 10×10.</p> <p>MA-P-NPO-S-NO7 Students will relate division facts to multiplication facts (e.g., using factor-factor-product).</p> <p>MA-P-NPO-S-NO8 Students will solve multi-digit addition and subtraction problems that contain numerals and symbols.</p> <p>MA-P-NPO-S-NO9 Students will add common fractions with like denominators using manipulatives.</p> <p>MA-P-NPO-S-NO10 Students will add and subtract decimals using money.</p> <p>MA-P-NPO-S-PNO4 Students will explore and use of properties of numbers for written and mental computation (e.g., $4 + 7 + 6$ could be mentally regrouped as $4 + 6 + 7$ using the commutative property of addition).</p>		<p>MA-EP-1.3.3 Students will divide two digit numbers by single digit divisors (with or without remainders) in real-world and mathematical problems.</p> <p>MA-EP-1.5.2 Students will use the commutative properties of addition and multiplication, the identity properties of addition and multiplication and the zero property of multiplication in written and mental computation.</p>	<p>I can use the commutative property of addition in written and mental computation.</p>	<p>Commutative Property of Addition</p>
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POS Understandings	MA-U-P-M-3 Students will understand that computing fluently and making reasonable estimates increases the ability to solve realistic problems encountered in everyday life.		9 Weeks Taught	1 2 3 4
POS Skills & Concepts	Date(s) Taught	Core Content for Assessment	Objective	Essential Vocabulary
<p>MA-P-NPO-S-NS7 Students will be introduced to and use decimals to represent money.</p> <p>MA-P-NPO-S-E1 Students will explore appropriate estimation procedures for different situations.</p> <p>MA-P-NPO-S-E2 Students will apply and describe appropriate strategies for estimating quantities of objects and computational results.</p> <p>MA-P-NPO-S-NO11 Students will use mental math, pencil-and-paper methods, calculators and/or computers to explore mathematical concepts and to assist with computation in problem solving situations.</p>		<p>MA-EP-1.2.1</p> <p>Students will apply and describe appropriate strategies for estimating quantities of objects and computational results (limited to addition and subtractions). DOK 2</p>	I can estimate objects up to 100's place.	Estimate Round
Strategies & Activities		Resources	Common Assessments	
Number Stars – p. 34 (Math Strategies You Can Count On by Char Forsten) P. Bear's New Year's Party – p. 88 (Math and Literature, grades 2-3 by Marilyn Burns and Stephanie Sheffield)				
		Essential Questions	Higher Order Questions	
		What couldn't we do if we didn't have numbers? How big do numbers get? How many different ways can you count? How can you compare numbers? What is an estimate? When is it OK to estimate?	I am thinking of number between 10 and 100 with a single 9 in it. What might my number be? How do you know your answer is right? How many different ways can you make the number 20 adding only the numbers 1 through 10? If the difference between two numbers is 5, what might the two numbers be? (from <i>Good Questions for Math Teaching</i> by Sullivan and Lilburn)	