

**Hamilton City School District**  
**Grade Two Ohio Mathematics Grade Level Indicators**

Number, Number Sense and Operations Standard		Measurement Standard	Geometry and Spatial Sense Standard	Patterns, Functions and Algebra Standard	Data Analysis and Probability Standard
<p style="text-align: center;"><b>Number and Numbers Systems</b></p> <p>2.1. Use place value concepts to represent, compare and order whole numbers using physical models, numerals and words, with ones, tens and hundreds. For example:</p> <ol style="list-style-type: none"> <li>Recognize 10 can mean “10 ones” or a single entity (1 ten) through physical models and trading games.</li> <li>Read and write 3-digit numerals (e.g., 243 as two hundred forty three, 24 tens and 3 ones, or 2 hundreds and 43 ones, etc.) and construct models to represent each.</li> </ol> <p>2.2. Recognize and classify numbers as even or odd.</p> <p>2.3. Count money and make change using coins and a dollar bill.</p> <p>2.4. Represent and write the value of money using the ¢ sign and in decimal form when using the \$ sign.</p> <p>2.5. Represent fractions (halves, thirds, fourths, sixths and eighths), using words, numerals and physical models. For example:</p> <ol style="list-style-type: none"> <li>Recognize that a fractional part can mean different amounts depending on the original quantity.</li> <li>Recognize that a fractional part of a rectangle does not have to be shaded with contiguous parts.</li> <li>Identify and illustrate parts of a whole and parts of sets of objects.</li> <li>Compare and order physical models of halves, thirds, and fourths in relation to 0 and 1.</li> </ol>	<p style="text-align: center;"><b>Meaning of Operations</b></p> <p>2.6. Model, represent and explain subtraction as comparison, take-away and part-to-whole; e.g., solve missing addend problems by counting up or subtracting, such as “I had six baseball cards, my sister gave me more, and I now have ten.” “How many did she give me?” can be represented as <math>6 + ? = 10</math> or <math>10 - 6 = 7</math>.</p> <p>2.7. Model, represent and explain multiplication as repeated addition, rectangular arrays and skip counting.</p> <p>2.8. Model, represent and explain division as sharing equally and repeated subtraction.</p> <p>2.9. Model and use the commutative property for addition.</p> <p style="text-align: center;"><b>Computation and Estimation</b></p> <p>2.10. Demonstrate fluency in addition facts with addends through 9 and corresponding subtractions, e.g., <math>9 + 9 = 18</math>, <math>18 - 9 = 9</math>.</p> <p>2.11. Add and subtract multiples of 10.</p> <p>2.12. Demonstrate multiple strategies for adding and subtracting 2- or 3-digit whole numbers, such as:</p> <ol style="list-style-type: none"> <li>Compatible numbers</li> <li>Compensatory numbers</li> <li>Informal use of commutative and associative properties of addition.</li> </ol> <p>2.13. Estimate the results of whole number addition and subtraction problems using front-end estimation, and judge the reasonableness of the answers.</p>	<p style="text-align: center;"><b>Measurement Units</b></p> <p>2.1. Identify and select appropriate units of measure for:</p> <ol style="list-style-type: none"> <li>Length-centimeters, meters, inches, feet or yards.</li> <li>Volume (capacity)-liters, cups, pints or quarts;</li> <li>Weight-grams, ounces or pounds.</li> <li>Time-hours, half-hours, quarter-hours or minutes and time designations, a.m. or p.m.</li> </ol> <p>2.2. Establish personal or common referents for units of measure to make estimates and comparisons; e.g., the width of a finger is a centimeter, a large bottle of soda pop is 2 liters, a small paper clip weighs about one gram.</p> <p>2.3. Describe and compare the relationships among units of measure, such as centimeters and meters; inches, feet and yards; cups, pints and quarts; ounces and pounds; and hours, half-hours, quarter-hours, e.g., how many inches in a foot?</p> <p>2.4. Tell time to the nearest minute interval on digital and to the nearest 5-minute intervals on analog (dial) timepieces.</p> <p style="text-align: center;"><b>Use Measurement Techniques and Tools</b></p> <p>2.5. Estimate and measure the length and weight of common objects, using metric and U.S. customary units, accurate to the nearest unit.</p> <p>2.6. Select and use appropriate measurement tools; e.g., a ruler to draw a segment 3 inches long, a measuring cup to place 2 cups of rice in a bowl, a scale to weigh 50 grams of candy.</p> <p>2.7. Make and test predictions about measurements, using different units to measure the same length or volume.</p>	<p style="text-align: center;"><b>Characteristics and Properties</b></p> <p>2.1. Identify, describe, compare and sort three-dimensional objects (i.e., cubes, spheres, prisms, cones, cylinders and pyramids) according to the shape of the faces or the number of faces, edges or vertices.</p> <p>2.2. Predict what new shapes will be formed by combining or cutting apart existing shapes.</p> <p>2.3. Recognize two-dimensional shapes and three-dimensional objects from different positions.</p> <p style="text-align: center;"><b>Spatial Relationships</b></p> <p>2.4. Identify and determine whether two-dimensional shapes are congruent (same shape and size) or similar (same shape different size) by copying or using superposition (lay one thing on top of another).</p> <p style="text-align: center;"><b>Transformations and Symmetry</b></p> <p>2.5. Create and identify two-dimensional figures with line symmetry; e.g., what letter shapes, logos, polygons are symmetrical?</p>	<p style="text-align: center;"><b>Use Patterns, Relations and Functions</b></p> <p>2.1. Extend simple number patterns (both repeating and growing patterns), and create similar patterns using different objects, such as using physical materials or shapes to represent numerical patterns.</p> <p>2.2. Use patterns to make generalizations and predictions; e.g., determine a missing element in a pattern.</p> <p>2.3. Create new patterns with consistent rules and describe the rule or general plan of existing patterns.</p> <p style="text-align: center;"><b>Use Algebraic Representations</b></p> <p>2.4. Use objects, pictures, numbers and other symbols to represent a problem situation.</p> <p>2.5. Understand equivalence and extend the concept to situations involving symbols; e.g., <math>4 + 5 = 9</math> and <math>9 = 4 + 5</math>, and <math>4 + 5 = 3 + 6 = \Delta + \square \dots</math></p> <p>2.6. Use symbols to represent unknown quantities and identify values for symbols in an expression or equation using addition and subtraction; e.g., <math>\square + 0 = 10</math>, <math>\Delta - 2 = 4</math>.</p> <p style="text-align: center;"><b>Analyze Change</b></p> <p>2.7. Describe qualitative and quantitative changes, especially those involving addition and subtraction; e.g., a student growing taller versus a student growing two inches in one year.</p>	<p style="text-align: center;"><b>Data Collection</b></p> <p>2.1. Pose questions, use observations, surveys to collect data, and organize data in charts, picture graphs and bar graphs.</p> <p>2.2. Read, interpret and make comparisons and predictions from data represented in charts, line plots, picture graphs, and bar graphs.</p> <p>2.3. Read and construct simple timelines to sequence events.</p> <p style="text-align: center;"><b>Statistical Methods</b></p> <p>2.4. Write a few sentences to describe and compare categories of data represented in a chart or graph, and make statements about the data as a whole.</p> <p>2.5. Identify untrue or inappropriate statements about a given set of data.</p> <p>2.6. Recognize that data may vary from one population to another e.g., favorite TV shows of students and of parents.</p> <p style="text-align: center;"><b>Probability</b></p> <p>2.7. List some of the possible outcomes of a simple experiment, and predict whether given outcomes are more, less or equally likely to occur.</p> <p>2.8. Use physical models and pictures to represent possible arrangements of 2 or 3 objects.</p>

**Hamilton City School District  
Grade 2 Mathematics  
Vocabulary and Concept Map**

Number, Number Sense and Operations		Measurement		Geometry and Spatial Sense	Patterns, Functions and Algebra	Data Analysis and Probability	Mathematical Processes
Addend	Odd	5-minute interval	Metric units	Cone	Equation	Arrangement	Pattern
Associative property	Ones	a.m.	Nearest unit	Congruent	Equivalent	Bar graph	Strategy
Commutative property	Physical model	Capacity	Ounce	Cube	Expression	Chart	Reasonableness
Compatible numbers	Rectangular arrays	Centimeter	p.m.	Cylinder	Generalization	Data	Solution
Compensatory numbers	Repeated addition	Common referents	Pint	Edge	Growing pattern	Equally likely	Estimation
Eighths	Repeated subtraction	Cup	Pound	Face	Missing element	graph	Invented symbols
Estimate	Sharing equally	Foot	Quart	Line symmetry	Number pattern	Less likely	Conventional symbols
Even	Sixths	Gram	Quarter-hour	Prism	Pattern rule	More likely	Prediction
Fourths	Tens	Half-hour	Time	Pyramid	Prediction	Observation	Problem situation
Fraction	Thirds	Hour	U.S. customary units	Similar	Qualitative	Outcome	Mathematical language
Front-end estimation	Whole number	Inch	Volume	Sphere	Quantitative	Picture	Mathematical thinking
Halves		Length	Weight	Superposition	Repeating pattern	Population	
Hundreds		Liter	Yard	Symmetrical	Value	Possible outcomes	
Missing addend		Measurement tool		Three-dimensional shape		Sequence	
Numeral		Meter		Two-dimensional shape		Survey	
				Vertex/vertices		Timeline	

Performance Verb	Level In Bloom's	Appearances in Grade 2 Indicators	Working Definition	
Classify	Level II: Comprehension	1	To assign to a category	<p style="text-align: center;"><b>The importance of the word <i>EXPLAIN</i></b></p> <p><b>EXPLAIN is the most frequently used verb in short answer and extended response</b></p> <p><b>EXPLAIN means to make clear and understandable and to give reasons for</b></p> <p><b>When asked to EXPLAIN, the response must include sufficient quality information and proof</b></p> <p><b>EXPLAIN is at the analysis level for problem solving</b></p> <p><b>In mathematics, EXPLAIN can involve numerical proof and drawings as well as verbal explanation</b></p>
Compare	Level II: Comprehension	5	To examine the qualities of to discover similarities or differences	
Construct	Level III: Application	2	To set in logical order	
Create	Level III: Application	3	To make or bring into existence	
Demonstrate	Level II: Comprehension	2	To prove or make clear by reasoning or evidence	
Describe	Level I: Knowledge	5	To represent or give an account of in words	
Determine	Level IV: Analysis	2	To find out or come to a decision by investigation, reason, calculation	
Establish	Level II: Comprehension	1	To bring into existence	
Estimate	Level III: Application	3	To judge approximately the value of	
Explain	Level II: Comprehension; Level IV: Analysis	3	To make plain or understandable	
Extend	Level II: Comprehension	2	To increase the scope, application, or meaning of	
Identify	Level I: Knowledge	7	To establish the identity of	
Interpret	Level II: Comprehension	1	To explain the meaning of	
Model	Level III: Application	4	To produce a representation or simulation of	
Order	Level III: Application	2	To arrange	
Predict	Level III: Application	5	To foretell on the basis of observation	
Recognize	Level I: Knowledge	6	To acknowledge or perceive something	
Represent	Level III: Application	11	To form an image or representation of	
Select	Level III: Application	2	To pick out or choose	
Test	Level IV: Analysis	1	To apply a test as a means of analysis	
Use	Level III: Application	9	To put into action or service	