



# Math Teachers Press, Inc.

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# Tennessee Mathematics Standards Correlated to Moving with Math Extensions Grade 4

|   |   | Student Book         | Skill Builders |
|---|---|----------------------|----------------|
| <b>STANDARD 1: MATHEMATICAL PROCESSES</b> |   |                      |                |
|   | Grade Level Expectations:   |                      |                |
| <b>GLE 0406.1.1</b>                       | Use mathematical language, symbols, and definitions while developing mathematical reasoning.  | 5, 39                |                |
| <b>GLE 0406.1.2</b>                       | Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.   | 21, 22, 34           |                |
| <b>GLE 0406.1.3</b>                       | Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.  | journal prompts      |                |
| <b>GLE 0406.1.4</b>                       | Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.                          | 2, 32                |                |
| <b>GLE 0406.1.5</b>                       | Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.  | 8, 63, 64            |                |
| <b>GLE 0406.1.6</b>                       | Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.  | journal prompts      |                |
| <b>GLE 0406.1.7</b>                       | Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.  | 9, 24                |                |
| <b>GLE 0406.1.8</b>                       | Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts. | 41                   |                |
|   | Formative/Summative Assessment:   |                      |                |
| <b>0406.1.1</b>                           | Understand the relationship between use of answers and the accuracy of the number.  | 60-61 (T.G.)         |                |
| <b>0406.1.2</b>                           | Identify the range of appropriate estimates, including over-estimate and under-estimate.  | 34 (T.G.), 62 (T.G.) |                |
| <b>0406.1.3</b>                           | Connect operations with decimals to money and make estimates.   | 33                   | 47-1           |

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| 0406.1.4     | Use commutative, associative, and distributive properties of numbers including oral descriptions of mathematical reasoning.            | 11, 12, 31   |                |
| 0406.1.5     | Measure using ruler, meter stick, clock, thermometer, or other scaled instruments.   | 57           | 45-1           |
| 0406.1.6     | Identify geometric or physical attributes that are appropriate to measure in a given situation.  | 62 (T.G.)    |                |
| 0406.1.7     | Translate the details of a contextual problem into diagrams and/or numerical expressions, and express answers using appropriate units. | 56 (T.G.)    |                |
| 0406.1.8     | Match the spoken, written, concrete (including base ten blocks), and pictorial representations of decimals.                            |              |                |
| 0406.1.9     | Develop a story problem that illustrates a given multiplication or division number sentence.   | 32           |                |
| 0406.1.10    | Use age-appropriate books, stories, and videos to convey ideas of mathematics.   | 33           |                |
|              | State Performance Indicators:  |              |                |
| SPI 0406.1.1 | Verify a conclusion using the commutative, associative and distributive properties.  | 11, 12       |                |
| SPI 0406.1.2 | Compare decimals using concrete and pictorial representations.   |              |                |
| SPI 0406.1.3 | Determine the correct change from a transaction.   | 24           | 47-1           |
| SPI 0406.1.4 | Compare objects with respect to a given geometric or physical attribute and select appropriate measurement instrument.                 | 57 (T.G.)    |                |
|              | <b>STANDARD 2: NUMBER AND OPERATIONS</b>   |              |                |
|              | Grade Level Expectations:  |              |                |
| GLE 0406.2.1 | Understand place value of numbers from hundredths to the hundred-thousands place.  | 1, 4         | 1-1, 6-1       |
| GLE 0406.2.2 | Develop fluency with multiplication and single-digit division.   | 25-27        | 20-3, 25-1     |
| GLE 0406.2.3 | Identify prime and composite numbers.  |              |                |
| GLE 0406.2.4 | Understand and use the connections between fractions and decimals.   |              |                |
| GLE 0406.2.5 | Add and subtract fractions with like and unlike denominators.  | 49, 50       | 33-1, 33-2     |
| GLE 0406.2.6 | Solve problems involving whole numbers, fractions, and/or decimals using all four arithmetic operations.                               | 36           |                |
|              | Formative/Summative Assessment:  |              |                |

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| 0406.2.1     | Compose and decompose quantities according to place value.   | 1, 2         |                |
| 0406.2.2     | Understand decimal notation as an extension of the base-ten number system.   |              |                |
| 0406.2.3     | Multiply two- and three-digit whole numbers.   | 29-32        | 23-1           |
| 0406.2.4     | Understand and use a reliable algorithm for multiplying multi-digit numbers and dividing numbers by a single-digit divisor accurately and efficiently. | 30, 31       | 21-2, 26-1     |
| 0406.2.5     | Understand that division by zero is undefined.   |              |                |
| 0406.2.6     | Divide three-digit whole numbers by one-digit divisors fluently with pencil and paper.   | 42           | 27-1           |
| 0406.2.7     | Identify factors of whole numbers and model factors and products beyond basic multiplication facts using arrays and area models.                       |              |                |
| 0406.2.8     | Generate equivalent forms whole numbers, decimals, and common fractions (e.g., $1/10$ , $1/4$ , $1/2$ , $3/4$ ).                                       |              |                |
| 0406.2.9     | Compare equivalent forms whole numbers, fractions, and decimals to each other and to benchmark numbers.  |              |                |
| 0406.2.10    | Use models to understand division as the inverse of multiplication, partitioning, and repeated subtraction.  | 37-39        | 25-2, 25-3     |
| 0406.2.11    | Use models, benchmarks, and equivalent forms to compare fractions/decimals and locate them on the number line.   | 47           | 32-1           |
| 0406.2.12    | Understand and use decimal numbers up to hundredths and write them as fractions.   |              |                |
| 0406.2.13    | Solve multi-step problems of various types using whole numbers, fractions, and decimals.   |              |                |
| 0406.2.14    | Understand the role of the remainder in division.  |              |                |
|              | State Performance Indicators:  |              |                |
| SPI 0406.2.1 | Read and write numbers from hundredths to hundred-thousands in numerals and in words.  | 7            | 4-1, 5-1       |
| SPI 0406.2.2 | Locate and place mixed numbers on the number line.   |              |                |
| SPI 0406.2.3 | Identify the place value of a specified digit in a number and the quantity it represents.  | 4            | 1-1            |
| SPI 0406.2.4 | Find factors, common factors, multiples, and common multiples of two numbers.  |              |                |
| SPI 0406.2.5 | Generate equivalent forms of common fractions and decimals and use them to compare size.   |              |                |

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| SPI 0406.2.6                    | Use the symbols <, >, and = to compare common fractions and decimals in both increasing and decreasing order.          | 47           |                |
| SPI 0406.2.7                    | Convert improper fractions into mixed numbers and/or decimals.   |              |                |
| SPI 0406.2.8                    | Add and subtract proper fractions with like and unlike denominators and simplify the answer.                           | 49, 50       | 33-1, 33-2     |
| SPI 0406.2.9                    | Add and subtract decimals through hundredths.  | 24           | 47-1           |
| SPI 0406.2.10                   | Solve contextual problems using whole numbers, fractions, and decimals.  | 33           |                |
| SPI 0406.2.11                   | Solve problems using whole number multi-digit multiplication.  | 33           | 48-1           |
| SPI 0406.2.12                   | Solve problems using whole number division with one- or two-digit divisors.  | 40, 44       | 49-1           |
| <b>STANDARD 3: ALGEBRA</b>      |  |              |                |
| Grade Level Expectations:       |  |              |                |
| GLE 0406.3.1                    | Extend understanding of a variable to equations involving whole numbers, fractions, decimals, and/or mixed numbers.    |              | 49-2           |
| GLE 0406.3.2                    | Use mathematical language and modeling to develop descriptions, rules and extensions of patterns.                      |              |                |
| GLE 0406.3.3                    | Translate between different forms of representations of whole number relationships.                                    | 3            | 49-2           |
| Formative/Summative Assessment: |  |              |                |
| 0406.3.1                        | Find an unknown quantity in simple equations using whole numbers, fractions, decimals, and mixed numbers.              | 11, 12       | 49-2           |
| 0406.3.2                        | Translate between symbols and words to represent quantities in expressions or equations.                               |              | 49-2           |
| 0406.3.3                        | Create, explain and use a rule to generate terms of a pattern or sequence.   |              |                |
| 0406.3.4                        | Translate between symbolic, numerical, verbal, or pictorial representations of a whole number pattern or relationship. |              |                |
| State Performance Indicators:   |  |              |                |
| SPI 0406.3.1                    | Use letters and symbols to represent an unknown quantity and write a simple mathematical expression.                   |              | 49-2           |
| SPI 0406.3.2                    | Make generalizations about geometric and numeric patterns.   |              |                |

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| <b>SPI 0406.3.3</b>                         | Represent and analyze patterns using words, function tables, and graphs.  |              |                        |
| <b>STANDARD 4: GEOMETRY AND MEASUREMENT</b> |   |              |                        |
| Grade Level Expectations:                   |   |              |                        |
| <b>GLE 0406.4.1</b>                         | Understand and use the properties of lines, segments, angles, polygons, and circles.  | 51-53        | 35-1                   |
| <b>GLE 0406.4.2</b>                         | understand and use measures of length, area, capacity, and weight.  | 57           | 43-1, 44-1, 45-1, 46-2 |
| <b>GLE 0406.4.3</b>                         | Solve problems that involve estimating and measuring length, area, capacity and weight.   |              | 46-2                   |
| <b>GLE 0406.4.4</b>                         | Understand the representation of location and movement within the first quadrant of a coordinate system.                        |              | 50-5                   |
| Formative/Summative Assessment:             |   |              |                        |
| <b>0406.4.1</b>                             | Identify the basic parts of circles.  |              |                        |
| <b>0406.4.2</b>                             | Understand the definition of degree as it relates to the circle.  |              |                        |
| <b>0406.4.3</b>                             | Classify angles and triangles as obtuse, acute, or right.   |              |                        |
| <b>0406.4.4</b>                             | Measure and draw angles.  |              |                        |
| <b>0406.4.5</b>                             | Determine if a figure is a polygon.   |              | 39-2                   |
| <b>0406.4.6</b>                             | Recognize the use of decimals in metric measures.   |              |                        |
| <b>0406.4.7</b>                             | Measure liquids using both standard units and metric units.   |              |                        |
| <b>0406.4.8</b>                             | Recognize that a measure of area represents the total number of same-sized units/that cover the shape without gaps or overlaps. | 62           | 46-2                   |
| <b>0406.4.9</b>                             | Recognize that area does not change when 2-dimensional figures are cut apart and rearranged.                                    |              |                        |
| <b>0406.4.10</b>                            | Connect area measure to multiplication using a rectangular area model.  | 62           |                        |
| <b>0406.4.11</b>                            | Estimate areas of rectangles in square inches and square centimeters.   | 62 (T.G.)    |                        |
| <b>0406.4.12</b>                            | Estimate the size of an object with respect to a given measurement attribute (length, perimeter, area, or capacity).            |              |                        |
| <b>0406.4.13</b>                            | Compare objects with respect to a given attribute such as length, area, and capacity  | 57 (T.G.)    |                        |
| <b>0406.4.14</b>                            | Explain how the components of a coordinate system are used to determine location.   |              | 50-5                   |
| <b>0406.4.15</b>                            | Explore properties of paths between points.   |              | 50-5                   |

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| 0406.4.16     | Examine transformations in the coordinate plane.  |              |                |
| 0406.4.17     | Predict the results of a transformation of a geometric shape.   |              |                |
| 0406.4.18     | Determine whether a geometric shape has line and/or rotational symmetry.  |              | 38-1           |
| 0406.4.19     | Design and analyze simple tilings and tessellations.  |              |                |
| 0406.4.20     | Draw lines of symmetry in 2-dimensional figures   |              | 38-1           |
| 0406.4.21     | Recognize two-dimensional faces of three-dimensional shapes.  |              |                |
|               | State Performance Indicators:   |              |                |
| SPI 0406.4.1  | Classify lines and line segments as parallel, perpendicular, or intersecting.   | 53           | 37-1           |
| SPI 0406.4.2  | Graph and interpret points with whole number or letter coordinates on grids or in the first quadrant of the coordinate plane.   |              | 50-5           |
| SPI 0406.4.3  | Construct geometric figures with vertices at points on a coordinate grid.   |              |                |
| SPI 0406.4.4  | Identify acute, obtuse, and right angles in 2-dimensional shapes.   |              |                |
| SPI 0406.4.5  | Identify attributes of simple and compound figures composed of 2- and 3-dimensional shapes.   |              | 39-2, 40-1     |
| SPI 0406.4.6  | Determine situations in which a highly accurate measurement is important.   |              |                |
| SPI 0406.4.7  | Determine appropriate size of unit of measurement in problem situations involving length, capacity or weight.   | 59           |                |
| SPI 0406.4.8  | Convert measurements within a single system that are common in daily life (e.g., hours and minutes, inches and feet, centimeters and meters, quarts and gallons, liters and milliliters). | 58, 59       |                |
| SPI 0406.4.9  | Solve problems involving area and/or perimeter of rectangular figures.  | 60-62        | 46-1, 46-2     |
| SPI 0406.4.10 | Identify images resulting from reflections, translations, or rotations.   |              |                |
|               | <b>STANDARD 5: DATA, PROBABILITY &amp; STATISTICS</b>   |              |                |
|               | Grade Level Expectations:   |              |                |
| GLE 0406.5.1  | Collect, record, arrange, present, and interpret data using tables and various representations.   | 63           | 50-1           |
| GLE 0406.5.2  | Use probability to describe chance events.  |              | 50-4, 50-7     |
|               | Formative/Summative Assessment:   |              |                |
| 0406.5.1      | Create and label appropriate scales for graphs.   |              |                |

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| <b>0406.5.2</b>     | Evaluate how well various representations show the collected data.                                |              |                  |
| <b>0406.5.3</b>     | Interpret and prepare pie charts using appropriate measurements of angles.                        |              |                  |
| <b>0406.5.4</b>     | Develop and use stem-and-leaf plots.  |              |                  |
| <b>0406.5.5</b>     | Use measures of central tendency to compare two sets of related data.                             |              |                  |
| <b>0406.5.6</b>     | Determine a simple probability.   |              | 50-7             |
| <b>0406.5.7</b>     | Express a probability pictorially.  |              |                  |
|                     | State Performance Indicators:   |              |                  |
| <b>SPI 0406.5.1</b> | Depict data using various representations (e.g., tables, pictographs, line graphs, bar graphs).   | 63           | 50-1, 50-2, 50-3 |
| <b>SPI 0406.5.2</b> | Solve problems using estimation and comparison within a single set of data.                       |              |                  |
| <b>SPI 0406.5.3</b> | Given a set of data or graph, describe the distribution of the data using median, range, or mode. |              | 50-6             |
| <b>SPI 0406.5.4</b> | List all possible outcomes of a given situation or event.   |              |                  |