ILLINOIS STATE BOARD OF EDUCATION

MATHEMATICS GRADE 3

Theory of Action: Academic standards represent a collective commitment around what students should learn each year. The state assessment asks students to demonstrate their knowledge, skills, and understanding related to these standards using a common measure. The resulting data allows us to see patterns in performance that should guide school and district improvement, helping identify areas of strength and opportunity.

Role of Performance Level Descriptors in Defining Proficiency: Performance level descriptors bridge the state assessment to classroom instruction and the systems of formative assessments that guide local instruction and choices about individual students. *Academic proficiency represents a range of observable student performance characteristics*. There are multiple pathways to proficiency, and students rely upon their strengths differently within that range of performance.

Proficiency and Difficulty: A student's ability to demonstrate proficiency is influenced by the complexity of the texts or stimuli presented, tasks they're asked to complete, and the contexts in which they are engaged. As student performance improves, students are typically able to handle more challenging texts/stimuli, tasks, and contexts, and are able to demonstrate their skills and knowledge more accurately and consistently.

Operations and Algebraic Thinking *Student performance indicates the ability to…*

Claim 1	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.0A.1	Recognize that the product of two whole numbers also will be a whole number.	Recognize the product of two whole numbers in terms of the number of groups and size of each group.	Interpret the product of two whole numbers in terms of the number of groups and size of each group.	Explain the product of two whole numbers in terms of the number of groups and size of each group using real-world context.
3.0A.2	Recognize that the quotient of two whole numbers is the equal distribution of objects to determine the solution.	Recognize that the quotient of two whole numbers is the distribution of objects equally to determine either the number or size of groups.	Interpret the quotient of two whole numbers in terms of distributing objects equally to determine either the number or size of groups.	Interpret the quotient of two whole numbers in terms of a real-world context sharing objects equally, such as size of groups or number of groups in relation to the quotient and explain their reasoning.
3.0A.3	Use multiplication or division within 100 to solve real-world problems focused on situations involving equal groupings or arrays. Represent a multiplication or division problem using drawings with the unknown value as the solution.	Use multiplication or division within 100 to solve real-world problems focused on situations involving equal groupings, arrays, and measurement quantities. Represent a multiplication and division problem using drawings or equations with the unknown number as the solution.	Use multiplication and division within 100 to solve real-world problems focused on situations involving equal groupings, arrays, and measurement quantities. Represent a multiplication and division problem using drawings and equations with a symbol for the unknown number.	Interpret a real-world context involving multiplication and division within 100. Explain their reasoning within the context of the situation involving equal groupings, arrays, and measurement quantities and using symbols for unknown values.
3.OA.4	Use the unknown number in multiplication or division equations involving three whole numbers as the solution.	Recognize the unknown number in multiplication or division equations involving three whole numbers to determine the missing value.	Determine the unknown number in multiplication or division equations involving three whole numbers to determine the missing value.	Determine the unknown number in multiplication and division equations and explain the relationship among the three whole numbers to determine the missing value.

Claim 1	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.OA.5	Use the properties of operations as strategies to multiply values.	Use the properties of operations as strategies to multiply or divide values.	Use the properties of operations as strategies to multiply and divide values.	Explain how the properties of operations can be used as strategies to solve multiplication and division problems.
3.OA.6	Use multiplication to solve division problems by writing a division equation as an unknown-factor equation.	Use multiplication to solve division problems by writing a division equation as an unknown-factor equation.	Use multiplication to solve division problems by writing a division equation as an unknown-factor equation recognizing the use of inverse operations.	Explain the inverse relationship between multiplication and division by writing a division problem as an unknown-factor problem.
3.OA.7	Use memorized facts to multiply and divide within 100.	Use the relationship between multiplication and division to fluently multiply and divide within 100.	Use the relationship between multiplication and division or properties of operations to fluently multiply and divide within 100.	Explain how the relationship between multiplication and division and properties of operations to fluently multiply and divide within 100.
3.OA.8	Use at least two operations to solve one-step word problems.	Use the four operations to solve one-step word problems.	Use the four operations to solve two-step word problems.	Explain and solve two-step word problems involving the four operations using unknown number equations and assessing the reasonableness of the solution.
		Solve word problems with equations that include a letter for the unknown quantity.	Represent word problems with equations that include a letter for the unknown quantity.	
		Recognize if the solution is reasonable.	Assess the reasonableness of their solution, which could include estimation or rounding strategies.	
3.OA.9	State arithmetic patterns within the context of addition or multiplication tables.	State arithmetic patterns within the context of addition and multiplication tables.	Use properties of operations to explain arithmetic patterns within the context of addition and multiplication tables.	Use arithmetic patterns to solve and explain addition and multiplication word problems.

Numbers and Operations in Base 10 *Student performance indicates the ability to…*				
Claim 2	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.NBT.2	Add or subtract within 1,000 by performing multi-digit arithmetic given a model.	Add or subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction given a model.	Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Justify the strategies and algorithms used to fluently add and subtract within 1,000.

Claim 2	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.NBT.3	Skip count by 10, 20, or 50 to multiply single-digit whole numbers by multiples of 10 in the range 10-90.	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60).	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. (A range of algorithms may be used.)	Justify the strategies and algorithm used to multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60).

Fractions	*Student performance indicates the ability to…*			*Numerical order changed to improve spacing*
Claim 3*	**Below Proficient**	**Approaching Proficient**	**Proficient**	**Above Proficient**
3.NF.1	Identify a fraction $\frac{1}{b}$ as the quantity formed by one part when a whole is partitioned into b equal parts given visual support.	Identify a fraction $\frac{1}{b}$ as the quantity formed by one part when a whole is partitioned into b equal parts.	Identify a fraction $\frac{1}{b}$ as the quantity formed by one part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a part of size $\frac{1}{b}$.	Apply understanding of unit fractions to solve real-world, multi-step problems.
3.NF.2	Identify a fraction as a number on the number line; represent fractions on a number line diagram. a. Identify a unit fraction as being between 0 and 1 on a number line. b. Recognize a partition that creates $\frac{1}{2}$ or $\frac{1}{4}$ on a number line.	Identify a fraction as a number on the number line; represent fractions on a number line diagram. a. Identify $\frac{1}{2}$ and $\frac{1}{3}$ on a number line. b. Identify the partitions on a number line that would represent common fractions.	Identify a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the end point of the part based at 0 locates the number $\frac{1}{b}$ on the number line. b. Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off a length $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line including values greater than 1.	Identify a fraction as a number on the number line; represent fractions on a number line diagram. a. Create a number line to locate any unit fraction that represents a real-world value. b. Create a number line to locate fractions greater than 1 that represent a real-world value.

Claim 3	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.NF.3	Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.	Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.	Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.	Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.
3.NF.3a	Identify equivalent fractions using denominators of 2, 4, and 8 given visual models.	Identify equivalent fractions using denominators of 2, 4, and 8.	Identify two fractions as equivalent if they have the same relative size compared to 1 whole.	Identify equivalent fractions by creating fraction models to compare fractions that pertain to the same whole.
3.NF.3a	Identify equivalent fractions using denominators of 2, 4, and 8 given visual models.	Identify equivalent fractions using denominators of 2, 4, and 8.	Identify two fractions as equivalent if they have the same relative size compared to 1 whole.	Identify equivalent fractions by creating fraction models to compare fractions that pertain to the same whole.
3.NF.3b	Recognize and generate simple equivalent fractions of halves and fourths using models based on the same whole. ($\frac{1}{2} = \frac{2}{4}$)	Recognize and generate simple equivalent fractions of halves and fourths. ($\frac{1}{2} = \frac{2}{4}$, or $\frac{4}{8} = \frac{1}{2}$)	Recognize and generate simple equivalent fractions. ($\frac{1}{2} = \frac{2}{4}$, or $\frac{4}{6} = \frac{2}{3}$)	Recognize and generate more than two equivalent fractions. ($\frac{1}{2} = \frac{2}{4}$, or $\frac{1}{2} = \frac{3}{6}$, or $\frac{1}{2} = \frac{4}{8}$, or $\frac{4}{6} = \frac{2}{3}$)
3.NF.3c	Express and recognize fractions that are equivalent to 1. ($\frac{3}{3} = 1$)	Express and recognize fractions that are equivalent to whole numbers. ($\frac{6}{2} = 3$)	Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. ($\frac{3}{1} = 3$ and $\frac{3}{3} = 1$)	Compare whole numbers as fractions with denominators greater than 1. ($\frac{15}{5} > \frac{10}{5}$)
3.NF.3d	Compare two fractions with the same denominator and record results using symbols.	Compare two fractions with the same numerator and record results using symbols.	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Understand that comparisons are valid only when the two fractions refer to the same whole. Record results of comparisons with the symbols >, =, or <, and justify conclusions.	Create and compare two fractions that have the same numerator or same denominator using symbols within a context.

Measurement and Data *Student performance indicates the ability to...*			*Numerical order changed to improve spacing*
Claim 4*	**Below Proficient**	**Approaching Proficient**	**Proficient**	**Above Proficient**

Claim 4*	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.MD.1	Identify and write time to the nearest minute using analog or digital clocks.	Identify, write, or measure time to the nearest minute and solve simple addition or subtraction problems involving time intervals.	Identify, write, and measure time to the nearest minute using analog or digital clocks. Identify, write, and measure time to the nearest minute and solve word problems involving addition and subtraction of time intervals, including representing problems on a number line. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., representing the problem on a number line diagram).	Solve and explain multi-step word problems involving addition and subtraction of time intervals in minutes.
3.MD.2	Recognize standard units of measurement for liquid volumes and masses (grams, kilograms, and liters).	Measure and estimate liquid volumes and masses using a scale and solve simple one-step word problems in the same units.	Measure and estimate liquid volumes and masses in standard units and solve one-step word problems using any of the four operations in the same units.	Measure, estimate, and solve multi-step measurement word problems involving any of the four operations, using grams, kilograms, or liters.
3.MD.3	Identify data from picture and bar graphs and calculate solutions to simple one-step problems.	Sketch simple scaled pictures and bar graphs given a limited set of data.	Construct scaled picture graphs and bar graphs to represent data with several categories and calculate solutions to one- and two-step "how many more" and "how many less" problems using the graphs.	Create scaled picture and bar graphs given a set of data and calculate solutions to questions using the graphs.
3.MD.4	Identify measurements using rulers marked with halves and fourths of an inch and plot basic data points on a line plot.	Estimate lengths using rulers marked with halves and fourths of an inch and construct line plots with horizontal scales marked in whole numbers, halves, or quarters.	Measure lengths using rulers marked with halves and fourths of an inch, record measurement data, and create accurate line plots with horizontal scales marked in whole numbers, halves, or quarters.	Evaluate measurements, synthesize data, and create line plots with appropriately scaled horizontal axes.

Claim 4	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement. a. Identify a square unit. b. Distinguish area from length and width.	Recognize area as an attribute of plane figures and understand concepts of area measurement. a. Recognize that area is measured using square units. b. Recognize overlapping and gaps in square unit place on a figure would not accurately describe area. Recognize area as an attribute of plane figures and use a square with side lengths of 1 unit as "one square unit" of area to tile the area of a plane figure, stating the number of tiles as the area measure.	Explain area as an attribute of plane figures and apply concepts of area measurement accurately. a. Calculate area by using unit squares. b. Explain that a plane figure can be covered without gaps or overlaps by n unit squares and determine the area of n square units. Use a square with side lengths of 1 unit as "one square unit" of area to measure the area of a plane figure.	Understand area as an attribute of plane figures and understand concepts of area measurement. a. Identify and use different unit squares. b. Cover a plane figure with unit squares of different sizes to show that the area of the same figure can be expressed as different numbers in different units. Explain area as an attribute of plane figures and apply concepts of area measurement using "one square unit" as unit of measure.
3.MD.6	Count squares to determine the area of a rectangle.	Count unit squares to determine the area.	Measure areas by counting unit squares.	Explain that areas can be determined by counting unit squares.
3.MD.7a	Recognize that a tiled area is a given number of tiles.	Recognize that a tiled area is equal to multiplying the number of rows by the number of tiles in each row.	Recognize that a tiled area is equal to multiplying the two-side lengths.	Explain that a tiled area is equal to multiplying the two-side lengths.
3.MD.7b	Use one to one counting or repeated addition to describe the number of tiles covering a rectangular area.	Use multiplication to find areas of rectangles within a given equation. Use "number of groups" and "size of groups" to explain whole-number products as rectangular areas.	Use multiplication to find areas of rectangles within the solving of real-world and mathematical problems. Use mathematical reasoning to explain whole-number products as rectangular areas.	Apply mathematical reasoning to explain whole-number products as rectangular areas relating to real-world and mathematical problems.
3.MD.7c	Label the sides of a rectangular figure with given side lengths.	Use area models to demonstrate the area of a rectangle with whole-number side lengths.	Use area models to demonstrate the distributive property that represents the area of a rectangle with whole-number side lengths.	Explain the relationship between area models and use the distributive property to solve for the area of a rectangle with whole-number side lengths.
3.MD.7d	Determine that there are smaller rectangular figures within a larger compound shape.	Divide and determine the area of a given irregular rectangular shapes by decomposing them into non-overlapping simple rectangles.	Find areas of irregular figures, in real-world problems, by decomposing them into non-overlapping simple rectangles and adding the areas, recognizing the area as additive.	Explain areas of irregular figures, in real-world problems, decomposing them into non-overlapping shapes, recognizing multiple ways to decompose the irregular figure.

Claim 4	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.MD.8	Determine the perimeter of regular shapes when side lengths are given.	Use properties of polygons to determine perimeter when side lengths are known.	Use properties of polygons to determine perimeter when side lengths are known or unknown side lengths when perimeter is known.	Use and explain how properties of polygons can help determine the perimeter or unknown side lengths, explain special cases where areas or perimeter differ between two differing shapes.
		Recognize that area and perimeter are different measurements.	Recognize situations where polygons have the same perimeter and different areas or the same area and different perimeters.	

Geometry	Student performance indicates the ability to…			
Claim 5	Below Proficient	Approaching Proficient	Proficient	Above Proficient
3.G.1	Identify properties of squares. Identify or draw a four-sided shape (e.g., square, rectangles).	Recognize the properties of quadrilaterals and the subcategories of quadrilaterals.	Classify shapes (e.g., rhombuses, rectangles, and others) according to their attributes (e.g., having four sides) and recognize that the shared attributes can define a larger category (e.g., quadrilaterals).	Recognize and sort examples of quadrilaterals that have shared attributes and that the shared attributes can define a larger category; draw examples and non-examples of quadrilaterals that are not rhombuses, rectangles, or squares.
		Identify similarities or differences among four-sided shapes.	Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	
		Recognize examples of quadrilaterals Identify and draw a four-sided shape (e.g., square, rectangles).		
3.G.2	Partition shapes into b parts with equal areas. Express the area of each part as a unit fraction $\frac{1}{b}$ of the whole. (Limited to halves and quarters.)	Partition shapes into b parts with equal areas. Express the area of each part as a unit fraction $\frac{1}{b}$ of the whole. (Limited to halves, quarters, and eighths.)	Partition shapes into b parts with equal areas. Express the area of each part as a unit fraction $\frac{1}{b}$ of the whole. (Grade 3 expectations are limited to fractions with denominators b = 2,3,4,6,8.)	Partition shapes into parts with equal areas and express the area as a unit fraction of the whole to answer questions presented in a context.