Green Township School District
Grade 3 Marking Period Mathematics Benchmarks

Report Card Indicators			
	MP #1	**MP #2**	**MP #3**
Domain: Operations & Algebraic Thinking			
3.OA.A. Represent and solve problems involving multiplication and division.			
1.Interpret products of whole numbers, *e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5 x 7.*	1. Interpret products of whole numbers with units 2-5 & 10. (M1 L3)		
	1. Interpret products of whole numbers with units 6-9. (M3 Topic A-D)		Reinforce
2 Interpret whole-number quotients of whole numbers, *e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	2. Interpret whole-number quotients of whole numbers with units 2-5 & 10 . (M1 L13)		
	2. Interpret whole-number quotients of whole numbers with units 6-9 . (M3 Topic A-D)		Reinforce
3. Use multiplication within 100 to solve word problems in situations involving equal groups, arrays, and	3. Solve two step word problems involving multiplication with units of 2-5 & 10. (M1 L20)		

measurement quantities, *e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.*			
	3. Solve two step word problems involving multiplication with units 0-10. (M3 L21)		Reinforce
3. Use division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	3. Solve two step word problems involving division with units of 2-5 & 10. (M1 L20)		Reinforce
4. Determine the unknown whole number in a multiplication relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48; 5 = □ ÷ 3; 6 × 6 = ?.	4. Determine the unknown whole number in a multiplication relating three whole numbers.(M1 L3)		Reinforce
4. Determine the unknown whole number in a division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48; 5 = □ ÷ 3; 6 × 6 = ?.	4. Determine the unknown whole number in a division equation relating three whole numbers. (M1 L11)		Reinforce
3.OA.B. Understand properties of multiplication and the relationship between multiplication and division.			
5. Apply properties of operations as strategies to multiply. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30.*	Apply properties of operations as strategies to multiply using units of 2-5 & 10. (M1 L15-17)		Reinforce

(Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)			
	Apply properties of operations as strategies to multiply using units of 6-9 (M3 L7,11,12)		Reinforce
5. Apply properties of operations as strategies to divide. (Commutative, Associative & Distributive)	Apply properties of operations as strategies to divide using units of 2-5 & 10. (M1 L19)		Reinforce
	Apply properties of operations as strategies to divide using units of 6-9 (M3 L7,11,12)		Reinforce
6. Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	6. Understand division as an unknown-factor problem with units of 2-5 & 10. (M1 L21)		Reinforce
	6. Understand division as an unknown-factor problem with units of 6-9. (M3 L15)		Reinforce
3.OA.C. Multiply and divide within 100. Fluency: By the end of Grade 3, know from memory all products of two one-digit numbers			
7. **Fluently** multiply within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations.	7. **Fluently** multiply within 40 using strategies such as the relationship between multiplication and division. (M1 Topic F)		
	7. **Fluently** multiply within 100 using strategies such as the relationship between multiplication and division. (M3 Topic A-E)	Reinforce	Reinforce

7. Fluently divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations.	7. Fluently divide within 40, using strategies such as the relationship between multiplication and division. (M1 Topic F)		
	7. Fluently divide within 100, using strategies such as the relationship between multiplication and division. (M3 Topic A-E)	Reinforce	Reinforce
3.OA.D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.			
8a. Solve two-step word problems using the four operations. *(Whole number factors, products and quotients; no order of operations knowledge required.)*	8a. Solve two-step word problems using the four operations with units of 2-5 & 10. (M1 L21)		
	8a. Solve two-step word problems using the four operations with units of 0-10. (M3 L18)	Reinforce	8a. Solve two-step word problems using the four operations with units of 0-10. (M7 Topic A & E; MP1,3)
8b.Represent two-step word problems using the four operations using equations with a letter standing for the unknown quantity.	8b. Represent two-step word problems using the four operations using equations with a letter standing for the unknown quantity. (M1 L21)		
	8b. Represent two-step word problems using the four operations using equations with a letter standing for the unknown quantity. (M3 L18)	Reinforce	Reinforce
8c.Assess the reasonableness of answers.	8c. Assess the reasonableness of answers. (M1 L21)		
	8c.Assess the reasonableness of answers. (M3 L18)	Reinforce	8c.Assess the reasonableness of answers. (M7 Topic A; MP1,3)
9a. Identify arithmetic patterns (including patterns in the addition table or multiplication table). *For*	9b. Identify arithmetic patterns using properties of operations. (M3 L17)		

example, observe that 4 times a number is always even.			
9b. Explain arithmetic patterns using properties of operations. *For example, explain why 4 times a number can be decomposed into two equal addends.*	9b. Explain arithmetic patterns using properties of operations. (M3 L17)		
3.NBT Numbers and Operations in Base Ten			
3.NBT.A. Use place value understanding and properties of operations to perform multi-digit arithmetic.			
1. Use place value understanding to round whole numbers to the nearest 10 or 100.	1. Use place value understanding to round whole numbers to the nearest 10 or 100. (M2 L17,21)	Reinforce	Reinforce
2. **Fluently** add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	2. **Fluently** add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (M2 L16;MP6)	Reinforce	Reinforce
2. **Fluently** subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	2. **Fluently** subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (M2 L19;MP6)	Reinforce	Reinforce
3. 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.	3. 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. (M3 L21)	Reinforce	Reinforce
3.NF Numbers and Operations - Fractions			
3.NF.A. Develop understanding of fractions as numbers.			
1a. Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into "*b"* equal parts.		1a. Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into "*b"* equal parts. (M5 Topic B)	Reinforce

1b. Understand a fraction a/b as the quantity formed by *"a"* parts of size 1/b.		1b. Understand a fraction a/b as the quantity formed by *"a"* parts of size 1/b. (M5 Topic B)	Reinforce
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. *(See breakout benchmarks below.)*			
2a-1. Represent a fraction 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.		2a-1. Represent a fraction 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. (M5 Topic D)	Reinforce
2a-2. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line.		2a-2. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line. (M5 Topic D)	Reinforce
2b-1. Represent a fraction *a/b* on a number line diagram by marking off a lengths *1/b* from 0.		2b-1. Represent a fraction *a/b* on a number line diagram by marking off a lengths *1/b* from 0. (M5 Topic D)	Reinforce
2b-2. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.		2b-2. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line. (M5 Topic D)	Reinforce
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. *(See breakout benchmarks below.)*			
3a. Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line.		3a. Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line. (M5 Topic E)	Reinforce
3b-1. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3).		3b-1. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). (M5 Topic E)	Reinforce

3b-2. Explain why the fractions are equivalent, *e.g., by using a visual fraction model*.		3b-2. Explain why the fractions are equivalent, *e.g., by using a visual fraction model*. (M5 Topic E)	Reinforce
3c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram*		3c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram* (M5 Topic E)	Reinforce
3d-1. Compare two fractions with the same numerator or the same denominator by reasoning about their size.		3d-1. Compare two fractions with the same numerator or the same denominator by reasoning about their size. (M5 Topic F)	Reinforce
3d-2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.		3d-2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (M5 Topic F)	Reinforce
3d-3. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.		3d-3. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (M5 Topic F)	Reinforce
3d-4.Justify the conclusions, e.g., by using a visual fraction model.		3d-4.Justify the conclusions, e.g., by using a visual fraction model. (M5 Topic F)	Reinforce
3.MD Measurement & Data			
3.MD.A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.			
1a. Tell time to the nearest minute.	1a. Tell time to the nearest minute. (M2 L5)		
1b. Write time to the nearest minute.	1b. Write time to the nearest minute. (M2 L5)		

1c. Measure time intervals in minutes.	1c. Measure time intervals in minutes. (M2 L5)		
1d. Solve word problems involving addition of time intervals in minutes, e.g., by representing the problem on a number line diagram.	1d. Solve word problems involving addition of time intervals in minutes, *e.g., by representing the problem on a number line diagram.*(M2 L5)		
1d. Solve word problems involving subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	1d. Solve word problems involving subtraction of time intervals in minutes, *e.g., by representing the problem on a number line diagram.*(M2 L5)		
2a-1. Measure liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). *(Excludes finding volume of container.)*	2a-1. Measure liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (M2 Topic B) *(Excludes finding volume of container.)*		
2a-2. Estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). *(Excludes finding volume of container.)*	2a-2. Estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).(M2 Topic B) *(Excludes finding volume of container.)*		
2b-1. Add to solve one-step word problems involving masses or volumes that are given in the same units (limit to g,kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	2b-1. Add to solve one-step word problems involving masses or volumes that are given in the same units (limit to g,kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (M2 Topic B)		
2b-2. Subtract to solve one-step word problems involving masses or volumes that are given in the same units (limit to g,kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	2b-2. Subtract to solve one-step word problems involving masses or volumes that are given in the same units (limit to g,kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (M2 Topic B)		
2b-3. Multiply to solve one-step word problems involving masses or	2b-3. Multiply to solve one-step word problems involving masses or		

volumes that are given in the same units (limit to g, kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. *(Excludes multiplicative comparison problems: problems involving notions of "times as much".)*	volumes that are given in the same units (limit to g, kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. *(Excludes multiplicative comparison problems: problems involving notions of "times as much".)* (M2 Topic B)		
2b-4. Divide to solve one-step word problems involving masses or volumes that are given in the same units (limit to g, kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. *(Excludes multiplicative comparison problems: problems involving notions of "times as much".)*	2b-4. Divide to solve one-step word problems involving masses or volumes that are given in the same units (limit to g, kg and L), e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. *(Excludes multiplicative comparison problems: problems involving notions of "times as much".)* (M2 Topic B)		
3.MD. B. Represent and interpret data.			
3a. Draw a <u>scaled</u> picture graph to represent a data set with several categories.			3a. Draw a <u>scaled</u> picture graph to represent a data set with several categories. (M6 Topic A)
3b. Draw a <u>scaled</u> bar graph to represent a data set with several categories.*For example, draw a bar graph in which each square in the bar graph might represent 5 pets*.			3b. Draw a <u>scaled</u> bar graph to represent a data set with several categories.*For example, draw a bar graph in which each square in the bar graph might represent 5 pets*.(M6 Topic A)
3c. Solve one-step "how many more" and "how many less" problems using information presented in scaled bar graphs.			3c. Solve one-step "how many more" and "how many less" problems using information presented in scaled bar graphs. (M6 Topic A)
3d. Solve two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.			3d. Solve two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.(M6 Topic A)

4a. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.			4a. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. (M6 Topic B)
4b. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.			4b. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (M6 Topic B)
3.MD.C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.			
5. Recognize area as an attribute of plane figures and understand concepts of area measurement. *(See breakout benchmarks below.)*			
5a-1. Recognize a square with side length 1 unit is called “a unit square”.		5a-1. Recognize a square with side length 1 unit is called “a unit square”.	
5a-2. Recognize a square with side length 1 unit is said to have “one square unit” of area.		5a-2. Recognize a square with side length 1 unit is said to have “one square unit” of area.	
5a-3. Recognize a square with side length 1 unit can be used to measure area.		5a-3. Recognize a square with side length 1 unit can be used to measure area.	
5b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.		5b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	
6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and nonstandard units).		6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and nonstandard units). (M4 Topic D)	
7. Relate area to the operations of multiplication and addition. *(See breakout benchmarks below.)*			

7a-1. Find the area of a rectangle with whole-number side lengths by tiling it.		7a-1. Find the area of a rectangle with whole-number side lengths by tiling it. (M4 L8)	
7a-2. Show that the area (found through tiling) is the same as would be found by multiplying the side lengths.		7a-2. Show that the area (found through tiling) is the same as would be found by multiplying the side lengths. (M4 L8)	
7b-1. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world problems.		7b-1. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world problems.(M4 L8)	
7b-2. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving mathematical problems.		7b-2. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving mathematical problems. (M4 L8)	
7b-3. Represent whole-number products as rectangular areas in mathematical reasoning.		7b-3. Represent whole-number products as rectangular areas in mathematical reasoning.(M4 L8)	
7c-1. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths ***a*** and ***b + c*** is the sum of ***a × b*** and ***a × c.*** (Distributive Property)		7c-1. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths ***a*** and ***b + c*** is the sum of ***a × b*** and ***a × c.*** (Distributive Property) (M4 Topic C)	
7c-2. Use area models to represent the distributive property in mathematical reasoning.		7c-2. Use area models to represent the distributive property in mathematical reasoning. (M4 Topic C)	
7d-1. Recognize area as additive.		7d-1. Recognize area as additive. (M4 Topic C)	
7d-2. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.		7d-2. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.(M4 Topic C)	

7d-3. Applying the technique (see 7d-2) to solve real world problems.		7d-3. Applying the technique (see 7d-2) to solve real world problems.(M4 Topic C)	
3.MD.D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.			
8. Solve real world problems involving perimeters of polygons:			8. Solve real world problems involving perimeters of polygons: (M7 Topic D-E)
8a-1. Including finding the perimeter given the side lengths			8a-1. Including finding the perimeter given the side lengths
8a-2. Finding an unknown side length			8a-2. Finding an unknown side length
8a-3. Exhibiting rectangles with the same perimeter and different areas			8a-3. Exhibiting rectangles with the same perimeter and different areas
8a-4. Exhibiting rectangles with the same area and different perimeters.			8a-4. Exhibiting rectangles with the same area and different perimeters.
8b. Solve mathematical problems involving perimeters of polygons:			8b. Solve mathematical problems involving perimeters of polygons:
8b-1. Including finding the perimeter given the side lengths			8b-1. Including finding the perimeter given the side lengths
8b-2. Finding an unknown side length			8b-2. Finding an unknown side length
8b-3. Exhibiting rectangles with the same perimeter and different areas			8b-3. Exhibiting rectangles with the same perimeter and different areas
8b-4. Exhibiting rectangles with the same area and different perimeters.			8b-4. Exhibiting rectangles with the same area and different perimeters.
3.G Geometry			
3.G.A. Reason with shapes and their attributes.			
1a. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides)			1a. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides) (M7 Topic B)

1b. Understand that the shared attributes can define a larger category (e.g., quadrilaterals).			1b. Understand that the shared attributes can define a larger category (e.g., quadrilaterals).(M7 Topic B)
1c. Recognize rhombuses, rectangles, and squares as examples of quadrilaterals			1c. Recognize rhombuses, rectangles, and squares as examples of quadrilaterals (M7 Topic B)
1d. Draw examples of quadrilaterals that do not belong to any of these subcategories.			1d. Draw examples of quadrilaterals that do not belong to any of these subcategories. (M7 Topic B)
2a. Partition shapes into parts with equal areas. *For example, partition a shape into 4 parts with equal area.*		2a. Partition shapes into parts with equal areas. *For example, partition a shape into 4 parts with equal area.* (M4 L4)	
2b. Express the area of each part as a unit fraction of the whole. *For example, describe the area of each part as 1/4 of the area of the shape.*		2b. Express the area of each part as a unit fraction of the whole. *For example, describe the area of each part as 1/4 of the area of the shape.* (M4 L4)	