LOUISIANA DEPARTMENT OF EDUCATION

Office of Assessments, Accountability, and Analytics

Grade 3 Mathematics

Achievement Level Descriptors

Major Content

The student solves problems involving the Major Content for the course with connections to the Standards for Mathematical Practice.

Major Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
Products and Quotients 3.OA.A.1 3.OA.A.2 3.OA.A.4 3.OA.B.6 3.OA.C.7	**Understands and** interprets products and quotients of whole numbers.	Interprets products and quotients of whole numbers.	Interprets products and quotients of whole numbers.	Interprets products and quotients of whole numbers.
	Determines the unknown whole number in a multiplication or division problem by relating multiplication and division, with **both factors greater than 5 and less than or equal 10.**	Determines the unknown whole number in a multiplication or division problem by relating multiplication and division, with **one factor greater than or equal to 5.**	Determines the unknown whole number in a multiplication or division problem by relating multiplication and division, with both factors less than or equal to 5, or with one factor of 10.	Determines the unknown whole number in a multiplication or division problem by relating multiplication and division, with both factors less than or equal to 5, or with one factor of 10.
	Represents a multiplication or division context as an equation.			
	Fluently multiplies and divides within 100, using strategies relating multiplication and division or properties of operations.	**Fluently** multiplies and divides within 100, using strategies relating multiplication and division or properties of operations.	Multiplies and divides within 100, using strategies relating multiplication and division or properties of operations.	Multiplies and divides within 100, using strategies relating multiplication and division or properties of operations.

Major Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
Solve Multiplication and Division Problems 3.OA.A.3	Uses multiplication and division within 100 to solve word problems involving equal groups, arrays, **area, and measurement quantities other than area, with both factors** greater than 5 and less than or equal to 10.	Uses multiplication and division within 100 to solve word problems involving equal groups and arrays, with **one factor greater than or equal to 5 and less than or equal to 10.**	Given a visual aid, uses multiplication and division within 100 to solve word problems involving equal groups **and arrays**, with both factors less than or equal to 5**, or with one factor of 10**.	Given a visual aid, uses multiplication and division within 100 to solve word problems involving equal groups, with both factors less than or equal to 5.
	Identifies contexts given a numerical expression involving multiplication and division.			
Two-Step Problems 3.OA.D.8 LEAP.I.3.2 LEAP.I.3.3	Solves two-step **unscaffolded** word problems using the four operations, **including rounding where appropriate**, in which the unknown is in a variety of positions **and both** values for each operation performed are substantial (towards the upper limits as defined by the standard assessed).	Solves two-step scaffolded word problems using the four operations **in which the unknown is in a variety of positions** and one value for each operation performed is substantial (towards the upper limits as defined by the standard assessed).	Solves two-step scaffolded word problems using the four operations and in which the sum, difference, product, or quotient is always the unknown **and one value for each operation performed is substantial (towards the upper limits as defined by the standard assessed).**	Solves two-step scaffolded word problems using the four operations and in which the sum, difference, product, or quotient is always the unknown.
Fraction Equivalence 3.NF.A.3 LEAP.I.3.1	Understands, recognizes and generates equivalent fractions with denominators of 2, **3**, 4, **6** and 8.	Understands, recognizes and generates equivalent fractions using denominators of 2, 4, and 8.	Given a visual model, **understands,** recognizes and **generates** equivalent fractions with denominators of 2, 4, and 8.	Given a visual model, recognizes equivalent fractions with denominators of 2, 4, and 8.
	Expresses whole numbers as fractions **and recognize fractions that are equivalent to whole numbers.**	Expresses whole numbers as fractions.	Expresses **whole numbers** as fractions.	Expresses the number 1 as a fraction.

Major Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
	Compares two fractions with the same numerator or same denominator using symbols to justify conclusions, **plots the location of equivalent fractions on a number line,** and recognizes two fractions must refer to the same whole in order to be compared.	Compares two fractions with the same numerator or same denominator using symbols**, justifies conclusions with a visual mode**, and recognizes two fractions must refer to the same whole in order to be compared.	**Compares two fractions with the same numerator or same denominator using symbols and recognizes two fractions must refer to the same whole in order to be compared.**	
	Given a whole number and two fractions in a real-world situation, plots all three numbers on a number line and determines which fraction is closest to the whole number. Justifies the comparison by plotting points on a number line.			
Fractions as Numbers 3.NF.A.1 3.NF.A.2 LEAP.I.3.1	Understands 1/*b* is equal to one whole that is partitioned into *b* equal parts with denominators of 2, **3**, 4, **6** and 8.	Understands 1/*b* is equal to one whole that is partitioned into *b* equal parts with denominators of 2, 4 and **8**.	Understands 1/*b* is equal to one whole that is partitioned into *b* equal parts with denominators of 2 and 4.	
	Represents 1/*b* on a number line diagram by partitioning the number line between 0-1 into *b* equal parts and recognizing that *b* is the total number of parts.	Represents 1/*b* on a number line diagram **by partitioning** the number line between 0-1 into *b* equal parts and recognizing that *b* is the total number of parts.	**Represents** 1/*b* on a number line diagram when partitioned between 0 and 1 into *b* equal parts and **recognizing that *b* is the total number of parts**.	Identifies 1/*b* on a number line diagram when partitioned between 0 and 1 into *b* equal parts.
	Demonstrates the understanding of the quantity *a*/*b* by marking off *a* parts of 1/*b* from 0 on the number line.	**Demonstrates the understanding of the quantity *a*/*b* by marking off *a* parts of 1/*b* from 0 on the number line.**	Represents fractions in the form *a*/*b* using a visual model.	

Major Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
	Applies the concepts of 1/*b* and *a*/*b* in real-world situations.			
	Describes a number line that best fits a context.			
Time 3.MD.A.1	Tells, writes, and measures time to the nearest minute.	Tells, writes, and measures time to the nearest minute.	Tells, writes, and measures time to the nearest minute.	Tells, writes, and measures time to the nearest minute.
	Solves **two**–step word problems involving addition and subtraction of time intervals in minutes.	Solves one-step word problems involving addition or subtraction of time intervals in minutes.	Solves one-step word problems involving addition or subtraction of time intervals in minutes, **with scaffolding.**	
Solve Measurement and Estimation Problems 3.MD.A.2 LEAP.I.3.4	Using grams, kilograms or liters, measures, estimates and solves word problems involving liquid volumes and masses of objects using any of the four basic operations, **including number values towards the higher end of the acceptable values for each operation.**	Using grams, kilograms or liters, measures, estimates, **and solves word problems involving** liquid volumes and masses of objects **using any of the four basic operations**.	Using grams, kilograms or liters, measures **and estimates** liquid volumes and masses of objects (beakers, measuring cups, scales)**.**	Using grams, kilograms or liters, measures liquid volumes and masses of concrete objects (beakers, measuring cups, scales).
	Uses estimated measurements **to compare answers** to word problems.	**Uses estimated measurements, when indicated, to answer word problems.**		
	Evaluates usefulness and accuracy of estimations.			

Major Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
Area Measurement 3.MD.C.5 3.MD.C.6 3.MD.C.7	Recognizes area as an attribute of plane figures.	Recognizes area as an attribute of plane figures.	Recognizes area as an attribute of plane figures.	Recognizes area as an attribute of plane figures.
	Understands area is measured using square units **and describes a visual model to show understanding that area that can be found by** covering a plane figure without gaps or overlaps with unit squares and counting them.	With a visual model, understands area is measured using square units and determines area by covering a plane figure without gaps or overlaps with unit squares and counting them.	With a visual model, understands area is measured using square units and determines area by **covering a plane figure without gaps or overlaps with unit squares and counting them.**	With a visual model, understands area is measured using square units and determines area by counting given unit squares.
	Connects counting squares to multiplication when finding area.			
	Represents the area of a plane figure as "*n*" square units.	**Represents the area of a plane figure as "*n*" square units.**		

Additional & Supporting Content

The student solves problems involving the Additional & Supporting Content for the course with connections to the Standards for Mathematical Practice.

Additional & Supporting Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
Multi-Digit Arithmetic 3.NBT.A.2 3.NBT.A.3	Fluently adds and subtracts within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**Fluently** adds and subtracts within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Adds and subtracts within 1000, using strategies and algorithms based on place value, properties of operations with scaffolding, and/or the relationship between addition and subtraction.	Adds and subtracts within 1000, using strategies and algorithms based on place value, properties of operations with scaffolding, and/or the relationship between addition and subtraction.
	Multiplies one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations.	Uses repeated addition to multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations.	**Uses repeated addition to multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations.**	
Scaled Graphs 3.MD.B.3 LEAP.I.3.6	Completes a scaled picture graph and a scaled bar graph to represent a data set.	Completes a scaled picture graph and a scaled bar graph to represent a data set.	**Completes** a scaled picture graph and a scaled bar graph to represent a data set**, with scaffolding, such as using a model as a guide.**	Identifies a correctly scaled picture graph and a correctly scaled bar graph to represent a data set.
	Solves one- and two-step "how many more" and "how many less" problems, **requiring a substantial addition, subtraction, or multiplication step**, using information presented in scaled bar graphs.	Solves one- **and two**-step "how many more" and "how many less" problems using information presented in scaled bar graphs.	Solves one-step "how many more" and "how many less" problems using information presented in scaled bar graphs.	Solves one-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Additional & Supporting Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
Measurement Data 3.MD.B.4	Generates measurement data by measuring lengths to the nearest half **and fourth** inch.	Generates measurement data by measuring lengths to the nearest half inch.	**Generates measurement data by measuring lengths to the nearest half inch.**	Identifies correct measurement from figures with appropriate scale provided.
	Shows the data by making a line plot, where the horizontal scale is marked in appropriate units of whole numbers, halves **or quarters**.	Shows the data by making a line plot, where the horizontal scale is marked in appropriate units of whole numbers or halves.	**Shows the data by making a line plot, where the horizontal scale is marked in appropriate units of whole numbers or halves, with scaffolding.**	
	Uses the line plot to answer questions or solve problems.			
Understanding Shapes 3.G.A.1	Understands the properties of quadrilaterals and the subcategories of quadrilaterals.	**Understands the properties** of quadrilaterals and the subcategories of quadrilaterals.	Identifies examples of quadrilaterals and the subcategories of quadrilaterals.	Identifies examples of quadrilaterals and the subcategories of quadrilaterals.
	Recognizes **and sorts** examples of quadrilaterals with shared attributes and **shows** that shared attributes can define a larger category.	Recognizes examples of quadrilaterals with shared attributes and that shared attributes can define a larger category.	**Recognizes examples of quadrilaterals with shared attributes and that shared attributes can define a larger category.**	
	Draws examples and **non-examples** of quadrilaterals with specific attributes.	**Draws examples of quadrilaterals with specific attributes.**		

Additional & Supporting Content				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
Perimeter and Area 3.G.A.2 3.MD.D.8 LEAP.I.3.5	Solves **real-world and** mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and provides examples of rectangles **with the same perimeter and different areas or** with the same area and different perimeters.	Solves mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, **finding an unknown side length**, and **provides examples of** rectangles with the same area and different perimeters.	Solves mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, **and identifying rectangles with the same area and different perimeters.**	Solves mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths.
	Partitions shapes into parts with equal areas and expresses the area as a unit fraction of the whole.			
Money 3.MD.E.9	Solves word problems involving pennies, nickels, dimes, quarters, and bills greater than one dollar, using the dollar and cent symbols appropriately.	Solves word problems involving pennies, nickels, dimes, quarters, and bills greater than one dollar, **using the dollar and cent symbols appropriately**.	Solves word problems involving pennies, nickels, dimes, quarters, **and bills greater than one dollar**.	Solves word problems involving pennies, nickels, dimes, and quarters.

Mathematical Reasoning & Modeling

In connection with course content, the student: expresses course-level appropriate mathematical reasoning by constructing viable arguments and critiquing the reasoning of others; attends to precision when making mathematical statements; solves real-world problems with a degree of difficulty appropriate to the grade/course by applying knowledge and skills articulated in the standards for the current grade/course (or for more complex problems, knowledge and skills articulated in the standards for previous grades/courses); engages in the modeling practice by using mathematics to solve problems arising in everyday scenarios; makes sense of problems and perseveres when solving them; uses appropriate tools strategically; and looks for and makes use of structure.

<table>
<tr><th colspan="5">Type II</th></tr>
<tr><th>Content</th><th>Level 5: Advanced</th><th>Level 4: Mastery</th><th>Level 3: Basic</th><th>Level 2: Approaching Basic</th></tr>
<tr><td rowspan="4">LEAP.II.3.1
LEAP.II.3.2
LEAP.II.3.3
LEAP.II.3.4
LEAP.II.3.5
LEAP.II.3.6
LEAP.II.3.7
LEAP.II.3.8</td><td colspan="2">In connection with the content knowledge and skills described in Major Content, the student clearly constructs and communicates a</td><td colspan="2">In connection with the content knowledge and skills described in Major Content, the student constructs and communicates a</td></tr>
<tr><td colspan="2">complete written response based on properties of operations;</td><td colspan="2">written response based on properties of operations;</td></tr>
<tr><td colspan="2">well-organized and complete response based on operations using concrete referents such as diagrams, including number lines, (whether provided in the prompt or constructed by the student) and connecting the diagrams to a written (symbolic) method</td><td colspan="2">response based on operations using concrete referents such as diagrams, including number lines, (provided in the prompt) and connecting the diagrams to a written (symbolic) method</td></tr>
<tr><td>well-organized and complete response by presenting and defending solutions to multi-step problems as valid chains of reasoning; using symbols appropriately; evaluating reasoning; and presenting and defending corrected reasoning</td><td>well-organized and complete response by presenting and defending solutions to multi-step problems as valid chains of reasoning; using symbols appropriately; distinguishing correct and flawed reasoning; and identifying and describing a flaw in reasoning or in solutions to multi-step problems; and presenting corrected reasoning</td><td>complete response by presenting solutions to multi-step problems as valid chains of reasoning; using symbols appropriately; distinguishing correct and flawed reasoning; and identifying and describing a flaw in reasoning or solutions to multi-step problems; and presenting corrected reasoning</td><td>response by presenting solutions to scaffolded two-step problems as valid chains of reasoning; using symbols appropriately; distinguishing correct and flawed reasoning; and identifying a flaw in reasoning</td></tr>
</table>

Type II				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
	Responses may include:			
	a logical/defensible approach based on a conjecture and/or stated assumptions, using mathematical connections	a logical/**defensible** approach based on a conjecture and/or stated assumptions, **using mathematical connections**	a **logical** approach based on a conjecture and/or stated assumptions	an approach based on a conjecture and/or stated or faulty assumptions
	an **efficient** and logical progression of steps **with appropriate justification**	a logical progression of steps	a **logical**, but incomplete, progression of steps	an incomplete or illogical progression of steps
	precision of calculation	precision of calculation	minor calculation errors	an intrusive calculation error
	fluent use of grade-level vocabulary, symbols, and labels	**fluent** use of grade-level vocabulary, symbols, and labels	limited use of grade-level vocabulary, symbols, and labels	limited use of grade-level vocabulary, symbols, and labels
	justification of a conclusion	justification of a conclusion	partial justification of a conclusion based on calculations	partial justification of a conclusion based on calculations
	determining whether an argument or conclusion is generalizable			
	evaluating, interpreting and critiquing the validity of responses, reasoning, and approaches, using mathematical connections and **providing a counter-example where applicable**	evaluating, **interpreting, and critiquing** the validity of responses, **reasoning,** and approaches **using mathematical connections**	**evaluating the validity of responses, approaches, and conclusions**	

Type III				
Content	**Level 5: Advanced**	**Level 4: Mastery**	**Level 3: Basic**	**Level 2: Approaching Basic**
	In connection with the content knowledge, skills, and abilities described in Major Content, the student devises a plan and applies mathematics to solve multi-step, real-world contextual word problems by:			
LEAP.III.3.1 LEAP.III.3.2	using stated assumptions and approximations or making assumptions to simplify a real-world situation	using stated assumptions and approximations or **making assumptions** to simplify a real-world situation	using stated assumptions and approximations to simplify a real-world situation	using stated assumptions and approximations to simplify a real-world situation
	analyzing and/or creating constraints, relationships, and goals			
	mapping relationships between quantities by selecting appropriate tools to create models	**mapping relationships** between quantities by **selecting appropriate** tools to create models	**illustrating relationships between quantities** by using provided tools to create models	identifying quantities by using provided tools to create models
	analyzing relationships mathematically between quantities to draw conclusions	analyzing relationships mathematically between quantities to draw conclusions	analyzing relationships mathematically **between quantities** to draw conclusions	analyzing relationships mathematically to draw conclusions
	justifying and defending models to lead to a conclusion			
	interpreting mathematical results in the context of the situation	interpreting mathematical results **in the context of the situation**	**interpreting mathematical results in a simplified context**	
	reflecting on whether results make sense	reflecting on whether results make sense	**reflecting on whether results make sense**	
	improving a model if it has not served its purpose	modifying **and/or improving** a model if it has not served its purpose	**modifying a model if it has not served its purpose**	
	writing a **concise** arithmetic expression or equation to describe a situation	writing an arithmetic expression or equation to describe a situation	writing an arithmetic expression or equation to describe a situation	writing an arithmetic expression or equation to describe a situation