DEPARTMENT of EDUCATION
Louisiana Believes

Practice Test Item Analysis
Grade 5

This Item Analysis is provided so that teachers, parents, and students may gain a better understanding of the Grade 5 iLEAP math test structure and the Common Core State Standards (CCSS) as applied to assessment. The table below is organized by practice test sequence number, CCSS, rationale for alignment, and connection to the practice test. The CCSS is the standard to which the item is aligned. The rationale for alignment explains an item's alignment to the standard listed. The language of the standards, any clarifications and/or tables offered by the CCSS, and the progression documents published by the University of Arizona were used when aligning items to the CCSS. The final column highlights specific qualities in each practice test item which adhere the rationale for alignment. The practice test can be found here, and a detailed explanation of assessment structure can be found here.

Sequence Number	CCSS	Rationale for Alignment	Connection to the Practice Test
1	5.NF.A.2	Language of the standard: "Solve word problems involving subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers." Progression Document *3-5, Number and Operations—Fractions*, page 10	Recognize a reasonable estimate using benchmark fractions that would be closest to the actual fraction of red beads to solve the word problem.
2	5.NBT.B.5	Language of the standard: "Fluently multiply multi-digit whole numbers using the standard algorithm."	Multiply $2,817 \times 380$.
3	5.NF.B.6	Language of the standard: "Solve real world problems involving multiplication of fractions and mixed numbers." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Multiply $5 \times 1\frac{1}{8}$ to solve the word problem.
4	5.NBT.B.6	Language of the standard: "Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models." Progression Document *K-5, Numbers and Operations in Base Ten*, page 16	Divide 442 by 34. For assessment purposes, students are not required to use the model. Since the standard algorithm is not required knowledge until grade 6, students should be familiar with a variety of division models. If unfamiliar with this type of model, a student may recall a type of model used during instruction and employ that method.

5	5.NBT.B.7	Language of the standard: "Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawing."	Multiply 3×2.5 or add $2.5+2.5+2.5$. Answer choices are represented by number line models.
6	5.NBT.A.2	Language of the standard: "Use whole-number exponents to denote powers of 10" Progression Document *K-5, Operations in Base Ten*, page 16.	Recognize that multiplying 6×500 is equivalent to $(6\times 5)\times 102$.
7	5.OA.A.1	Language of the standard: "Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols."	Evaluate the expression $3(20+10)+40$.
8	5.NF.B.6	Language of the standard: "Solve real world problems involving multiplication of fractions and mixed numbers." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Multiply $3\frac{3}{4}\times\frac{1}{3}$ to solve the word problem.
9	5.NBT.B.5	Language of the standard: "Fluently multiply multi-digit whole numbers using the standard algorithm."	Multiply 107×25.
10	5.NF.A.1	Language of the standard: "Subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Recognize the expression of equivalent fractions that would be used to solve the given expression.
11	5.NBT.B.7	Language of the standard: "divide decimals to hundredths, using concrete models." Progression Document *K-5, Numbers and Operations in Base Ten*, page 17	Divide 0.24 by 3. A model is provided for student to use, but is not required to solve.
12	5.NF.A.1	Language of the standard: "Add fractions with unlike denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Add $3\frac{2}{3}+5\frac{3}{4}$.
13	5.NF.B.6	Language of the standard: "Solve real world problems involving multiplication of fractions and mixed numbers."	Multiply $\frac{8}{15}\times\frac{1}{4}$ to solve the word problem.

14	5.NF.A.1	Language of the standard: "Add fractions with unlike denominators (including mixed numbers)." Progression Document *3-5, Number and Operations—Fractions*, page 10	Add $2\frac{3}{8}+\frac{13}{20}$.
15	5.NBT.B.7	Language of the standard: "Multiply decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used."	Recognize equivalent expression that can be used to solve 0.75×6.5. The equivalent expression demonstrates a strategy based on place value.
16	5.NF.B.4	Language of the standard: "Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Multiply $\frac{3}{8}\times\frac{2}{5}$.
17	5.NF.A.2	Language of the standard: "Solve word problems involving addition of fractions referring to the same whole, including cases of unlike denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Add $\frac{5}{8}+\frac{1}{6}+\frac{1}{4}$ to solve the word problem.
18	5.NF.A.2	Language of the standard: "Solve word problems involving addition of fractions referring to the same whole, including cases of unlike denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Add $\frac{1}{5}+\frac{3}{8}$ to solve the word problem.
19	5.NF.B.3	Language of the standard: "Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Recognize $\frac{19}{31}$ as $19 \div 31$.
20	5.NBT.B.5	Language of the standard: "Fluently multiply multi-digit whole numbers using the standard algorithm."	Multiply $1,234\times 987$ using the standard algorithm.

21	5.NBT.A.1	Language of the standard: "Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left."	Recognize the value of the 4 in the tenths place is 10 times greater than the value of the 4 in the hundredths place.
22	5.NF.B.3	Language of the standard: "Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Interpret $\frac{20}{8}$ as a situation wherein $20 \div 8$ solves the word problem.
23	5.NF.B.6	Language of the standard: "Solve real world problems involving multiplication of fractions and mixed numbers." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Multiply $\frac{1}{6} \times \frac{1}{2}$ to solve the word problem.
24	5.NBT.B.7	Language of the standard: "Subtract decimals to hundredths."	Subtract $26.25 - 23.78$.
25	5.OA.A.1	Language of the standard: "Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols."	Evaluate the expression $3 \times \left[(2 \times 6 - 5) + (8 \div 4) \right] - 1$.
26	5.NF.A.2	Language of the standard: "Solve word problems involving subtraction of fractions referring to the same whole, including cases of unlike denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Subtract $\frac{3}{4} - \frac{1}{5} - \frac{1}{4}$ to solve the word problem.
27	5.NF.B.4b	Language of the standard: "Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas."	Multiply $2\frac{3}{4} \times 5$ to find the area of the rectangle.

28	5.NF.B.7c	Language of the standard: "Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models." Progression Document *3-5, Number and Operations—Fractions*, page 12 Progression Document *6-8, The Number System*, page 5	Recognize the situation that, when solved, could be represented by the visual fraction model provided.
29	5.NF.B.7c	Language of the standard: "Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem." Progression Document *3-5, Number and Operations—Fractions*, page 12 Progression Document *6-8, The Number System*, page 5	Divide $\frac{1}{3}$ by 4 to solve the word problem.
30	5.NBT.B.6	Language of the standard: "Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models." Progression Document *K-5, Numbers and Operations in Base Ten*, page 16	Use the area model to divide 756 by 21.
31	5.NF.A.2	Language of the standard: "Solve word problems involving addition of fractions referring to the same whole, including cases of unlike denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Add $\frac{1}{2}+\frac{2}{5}$ to solve the word problem.
32	5.OA.A.2	Language of the standard: "Write simple expressions that record calculations with numbers."	Using information provided in the word problem, write the expression $5\times(19+12)$.
33	5.OA.A.2	Language of the standard: "Write simple expressions that record calculations with numbers."	Using the information provided in the word problem, write the expression $(467\times7)-(215\times3)$.

34	5.G.A.2	Language of the standard: "Interpret coordinate values of points in the context of the situation." Progression Document *K-6, Geometry*, page 16	Interpret the coordinate point $(4,6)$ as 6 stars in 4 minutes.
35	5.MD.B.2	Language of the standard: "Use operations on fractions for this grade to solve problems involving information presented in line plots."	Understand each x represents an increase in height. Only D is possible, adding $52\frac{1}{4}+1\frac{3}{4}$ is 54 inches. No other height shown on the line plot can be added to $52\frac{1}{4}$ and equal another answer choice.
36	5.NBT.B.4	Language of the standard: "Use place value understanding to round decimals to any place."	Round 300.5849 to the nearest hundredth, 300.58.
37	5.G.B.4	Language of the standard: "Classify two-dimensional figures in a hierarchy based on properties." Progression Document *K-6, Geometry*, page 17	Classify the parallelogram and rhombus as the only group of shapes shown to have both two pairs of parallel sides and two acute angles.
38	5.MD.C.4	Language of the standard: "Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units." Progression Document *K-5, Geometric Measurement*, page 26	Measure the volume of the stack of toy blocks by counting the unit cubes.
39	5.NF.A.1	Language of the standard: "Subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent difference of fractions with like denominators." Progression Document *3-5, Number and Operations—Fractions*, page 10	Identify the process for subtracting $\frac{2}{5}-\frac{14}{25}$ by replacing given fractions with equivalent fractions in such a way as to produce an equivalent difference of fractions with like denominators.

40	5.NF.B.4b	Language of the standard: "Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Multiply $3\frac{1}{2} \times 2\frac{1}{4}$ to find the area of the rectangle.
41	5.MD.A.1	Language of the standard: "Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems."	Convert 3 tons to 6,000 pounds. Subtract $6,000 - 5,000$ to find the difference.
42	5.G.B.4	Language of the standard: "Classify two-dimensional figures in a hierarchy based on properties." Progression Document *K-6, Geometry*, page 17	Classify an octagon as a polygon because it has at least 3 sides.
43	5.MD.A.1	Language of the standard: "Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems."	Convert all given weights to the same unit (ounces or pounds). Find the sum of the weights. Convert the sum to the form of pounds and ounces to identify the correct answer choice.
44	5.NF.B.3	Language of the standard: "Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Interpret $116 \div 6$ as the fraction $\frac{116}{6}$ to solve the word problem.

45	5.NF.B.7c	Language of the standard: "Solve real world problems involving division of unit fractions by non-zero whole numbers." Progression Document *3-5, Number and Operations—Fractions*, page 12 Progression Document *6-8 The Number System*, page 5	Divide $\frac{1}{4} \div 7$ to solve the word problem.
46	5.G.A.1	Language of the standard: "Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond." Progression Document *K-6, Geometry*, page 16	Identify the points (1, 2), (2, 4), and (3, 1) in a coordinate plane.
47	5.OA.A.3	Language of the standard: "Identify apparent relationships between corresponding terms."	Identify the relationship between the sums of the corresponding terms in the patterns as always divisible by 3.
48	5.NBT.B.3a	Language of the standard: "Read and write decimals to thousandths using base-ten numerals, number names, and expanded form."	Recognize three hundred twenty-six thousandths written in base-ten expanded form.
49	5.NBT.B.3	Language of the standard: "Read, write, and compare decimals to thousandths."	Compare 0.17 to 0.023.
50	5.MD.C.3a	Language of the standard: "A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume." Progression Document *K-5, Geometric Measurement*, page 26	Identify a unit cube used to measure volume.

51	5.NF.B.5	Language of the standard: "Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication; b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1." Progression Document *3-5, Number and Operations—Fractions*, page 11-13	Explain why multiplying $\frac{3}{3} \times \frac{2}{3}$ creates an equivalent fraction $\frac{6}{9}$. Compare $\frac{2}{3}$ multiplied by a number between 0 and 1 to the $\frac{2}{3}$ multiplied by a number between 1 and 2. Explain or show that multiplying $\frac{2}{3}$ by a fraction greater than 1 results in a product greater $\frac{2}{3}$. Explain or show that multiplying $\frac{2}{3}$ by a fraction less than 1 results in a product smaller than $\frac{2}{3}$.
52	5.MD.C.5	Language of the standard: "Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems." Progression Document *K-5, Geometric Measurement*, page 26	Find the volume by multiplying $3 \times 5 \times 2$. Multiply $2 \times 3 \times 1$. Subtract the product from the answer in part A. Determine two unique sets of dimensions to represent the difference. Given the area of the base, 7 square feet, recognize that in order for the volume to be between 24 and 30 cubic feet, the height must be between $\frac{24}{7}$ and $\frac{30}{7}$ feet. Any number between, but not including, $\frac{24}{7}$ and $\frac{30}{7}$ will be correct. Students can also recognize that $7 \times 4 = 28$. No calculations are required to solve this part.