This guide includes:

PURPOSE

This document is designed to assist Louisiana educators in understanding the LEAP 2025 mathematics assessment for grade 7, which is administered each spring.

Introduction

All students in grades 3–HS will take the LEAP 2025 mathematics assessments, which provide:

- questions that have been reviewed by Louisiana educators to ensure their alignment to the Louisiana Student Standards and appropriateness for Louisiana students;
- measurement of the full range of student performance, including the performance of high- and low-performing students;
- information for educators and parents about student readiness in mathematics and whether students are "on track" for college and careers; and
- comparison of Louisiana student performance with the performance of students in other states.

ASSESSMENT DESIGN

Each item on the LEAP 2025 mathematics assessment is referred to as a task and is identified by one of three types: Type I, Type II, or Type III. As shown in the table, each of the three task types is aligned to one of four reporting categories: Major Content, Additional & Supporting Content, Expressing Mathematical Reasoning, or Modeling & Application. Each task type is designed to align with at least one of the Louisiana Student Standards for Mathematical Practice (MP), found on pages 6-8 in the K-12 Louisiana Student Standards for Mathematics.

Task Type	Description	Reporting Category	Mathematical Practice (MP)
Type I	conceptual understanding, fluency, and application	**Major Content:** solve problems involving the major content for grade 7 **Additional & Supporting Content:** solve problems involving the additional and supporting content for grade 7	can involve any or all practices
Type II	written arguments/justifications, critique of reasoning, or precision in mathematical statements	**Expressing Mathematical Reasoning:** express mathematical reasoning by constructing mathematical arguments and critiques	primarily MP.3 and MP.6, but may also involve any of the other practices
Type III	modeling/application in a real-world context or scenario	**Modeling & Application:** solve real-world problems engaging particularly in the modeling practice	primarily MP.4, but may also involve any of the other practices

These reporting categories will provide parents and educators valuable information about

- overall student performance, including readiness to continue further studies in mathematics;
- student performance broken down by mathematics subcategories, which may help identify when students need additional support or more challenging work; and
- how well schools and districts are helping students achieve higher expectations.

The LEAP 2025 mathematics assessment in grade 7 contains a total of 43 tasks for 66 points. The table below shows the breakdown of the number of tasks and point values by Reporting Category and Session. The LDOE is currently analyzing timing data, feedback from schools and districts, and field-test information to determine the appropriate session times for the LEAP 2025 ELA and mathematics assessments. Information about exact session times will be added to the table in Fall 2017.

Reporting Category	Session 1: No Calculator		Session 2: Calculator		Session 3: Calculator		TOTAL	
	Tasks	Points	Tasks	Points	Tasks	Points	Tasks	Points
Major Content	10-12	12	6-8	8	8-10	10	26-30	30
Additional & Supporting Content	6-8	8	1-2	2	0	0	6-10	10
Expressing Mathematical Reasoning	0	0	2	7	2	7	4	14
Modeling & Application	0	0	2	9	1	3	3	12
TOTAL Operational	16-20	20	12-13	26	11-13	20	**43**	**66**
Total Embedded Field Test	2-3	N/A	2-3	N/A	1	N/A	5-7	N/A

Note: The test will contain additional field-test tasks. The field-test tasks do **not** count towards a student's final score on the test; they provide information that will be used to help develop future test forms.

The following table includes information on the total tasks, total points, and percentage of assessment points by task-type point-values.

Task Types	Point-Values	Total Tasks	Total Points		Percentage of Assessment Points	
Type I	1-point tasks	32	32	40	49%	61%
	2-point tasks	4	8		12%	
Type II	3-point tasks	2	6	14	9%	21%
	4-point tasks	2	8		12%	
Type III	3-point tasks	2	6	12	9%	18%
	6-point tasks	1	6		9%	
TOTAL		43	66		100%	

Achievement-Level Definitions

Achievement-level definitions briefly describe the expectations for student performance at each of Louisiana's five achievement levels, described below:

- **Advanced:** Students performing at this level have **exceeded** college and career readiness expectations, and are well prepared for the next level of studies in this content area.
- **Mastery:** Students performing at this level have **met** college and career readiness expectations, and are prepared for the next level of studies in this content area.
- **Basic:** Students performing at this level have **nearly met** college and career readiness expectations, and may need additional support to be fully prepared for the next level of studies in this content area.
- **Approaching Basic:** Students performing at this level have **partially met** college and career readiness expectations, and will need much support to be prepared for the next level of studies in this content area.
- **Unsatisfactory:** Students performing at this level have **not yet met** the college and career readiness expectations, and will need extensive support to be prepared for the next level of studies in this content area.

ASSESSABLE CONTENT

The tasks on the LEAP 2025 mathematics test are aligned directly to the Louisiana Student Standards for Mathematics (LSSM) for all reporting categories. Type I tasks, designed to assess conceptual understanding, fluency, and application, are aligned to the major, additional, and supporting content for grade 7. Type II tasks are designed to assess student reasoning ability of selected major content for grades 6 or 7 in applied contexts. Type III tasks are designed to assess student modeling ability of selected content for grades 6 or 7 in applied contexts. Type II and III tasks are further aligned to LEAP 2025 evidence statements for the Expressing Mathematical Reasoning and Modeling & Application reporting categories. All tasks are reviewed and vetted by teacher committees to verify direct and full alignment to the LSSM. LEAP 2025 evidence statements for grade 7 are labeled as "LEAP.II.7.#" for Type II tasks and "LEAP.III.7.#" for Type III tasks. See the table in Appendix A for a listing of assessable content of the LSSM and LEAP 2025 evidence statements.

TEST ADMINISTRATION POLICIES

Administration Schedule

The **computer-based testing window opens April 9, 2018 and runs through May 4, 2018**. The school or district test coordinator will communicate the testing schedule. For more information about scheduling and administration policies, refer to the CBT Guidance document, found in the LDOE assessment library.

The LEAP 2025 ELA, mathematics, and social studies tests are **timed**. No additional time is permitted, except for students who have a documented extended time accommodation (e.g., an IEP).

Students will enter their answers into the online testing system. The way each answer is entered depends on the task type. For example, for a multiple-choice task, a student will select the circle next to the correct answer. For fill-in-the-blank and constructed-response tasks on online test forms, students will type in the number (integer or decimal) or text in the box using the typing tools provided. Some response boxes limit the length of the response that can be typed and whether numbers and/or text can be typed. Computer-based tests allow for the use of technology-enhanced items (TEI) that use innovative, engaging ways to assess student understanding of material beyond the limitations of a traditional selected-response task. A TEI may require the student to sort shapes into categories by using a drag-and-drop tool, show a fraction or an area by selecting cells in a figure, or create angles by rotating rays.

The computer-based tests include the following online tools, which allow a student to select answer choices, "mark" tasks, eliminate answer options, use a calculator, take notes, enlarge the task, guide the reading of a task line by line, see the mathematics reference sheet, use a ruler and protractor, and use an equation builder for entering special characters. A help tool is also featured to assist students as they use the online system.

- Pointer tool 
- Highlighter tool 
- Cross-Off tool 
- Calculator 
- Sticky Note tool 
- Magnifying tool 
- Line Guide 

- Mathematics Reference Sheet 

- Measurement tools 
- Equation Builder 

- Help tool 

All students taking the computer-based tests should work through the Online Tools Training (available in INSIGHT or here using the Chrome browser) to practice using the online tools so they are well prepared to navigate the online testing system. (The OTT will be updated Fall 2017 to include a new item type. See the samples section for more information.)

Sample Test Items

This section includes seven Type I tasks, one Type II task, and one Type III task as they would appear on a test. The answer keys for each Type I task and scoring rubrics for each constructed-response task are located in Appendix B. Look for some of these tasks in the OTT.

Multiple-Choice Task

A scuba diver standing on a boat is at an altitude of 1.3 meters above sea level. The scuba diver jumps into the water and decreases his altitude by 5.6 meters in one minute.

Which equation can be used to determine the scuba diver's altitude, in meters relative to sea level, one minute after jumping into the water?

(a) $1.3 + 5.6 = 6.9$

(b) $-1.3 + 5.6 = 4.3$

(c) $1.3 + (-5.6) = -4.3$

(d) $-1.3 + (-5.6) = -6.9$

Multiple-Select Task

Lashawn randomly surveys students in his school about which activities they prefer. Students choose from hiking, reading, and swimming. Lashawn's results are shown in the table.

Student Survey

Activity	Hiking	Reading	Swimming
Number of Students	7	9	4

Based on Lashawn's results, select **all** predictions that can be made about randomly selected groups of students in his school.

(a) Out of 20 students, about 14 will prefer hiking.

(b) Out of 25 students, about 5 will prefer swimming.

(c) Out of 100 students about 20 will prefer swimming.

(d) Out of 200 students, about 90 will prefer reading.

(e) Out of 500 students, about 200 will prefer hiking or swimming.

Fill-in-the-Blank Task

Last week, the value of an investment changed at a rate of −$3.15 each day. After how many days was the total change in value −$12.60?
Enter your answer in the box.

Short Equation Input Task (NEW)[1]

Solve the equation.

$8(x + 6) = 43$

What is the value of x?

Enter your answer in the box.

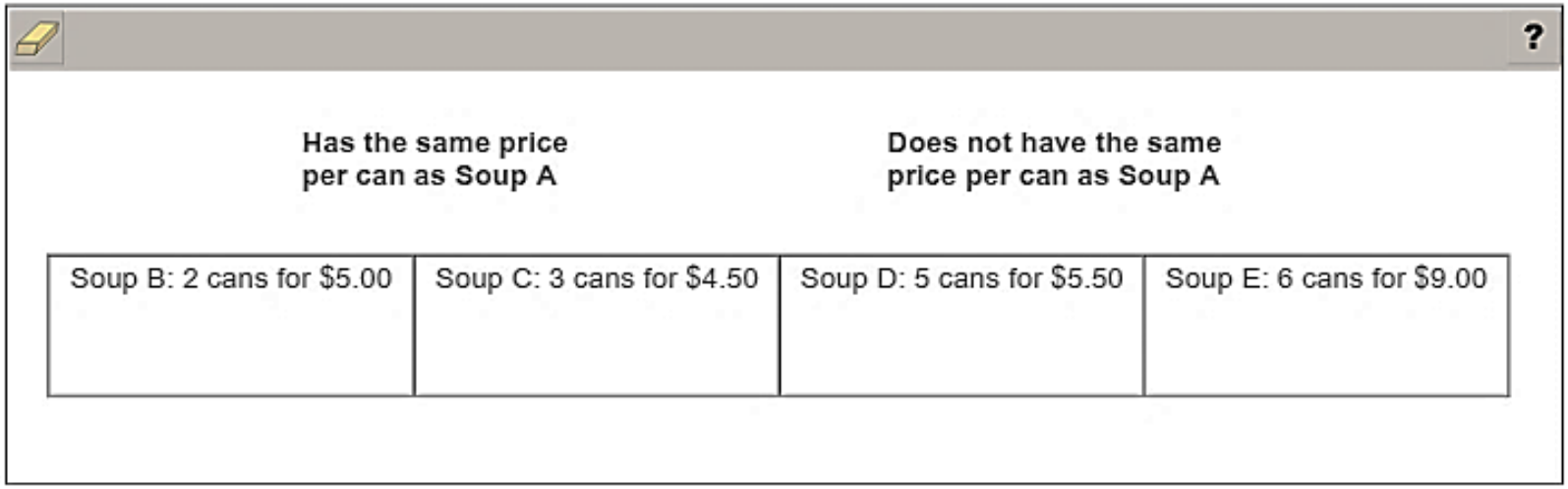
[1] The short equation input item type has not been on previous administrations of the LEAP 2025 test. Students may interact with the short equation input on the Spring 2018 administration and can practice with it on the OTT, which will be updated Fall 2017.

TEI: Drag-and-Drop Task

Ted bought 4 cans of Soup A for $6.00.

For each soup in the table, indicate whether or not the soup has the same price per can as Soup A.

Drag and drop the appropriate phrase into each box.



TEI: Dropdown Menu Task

On Monday, the temperature at 10 a.m. at Sam's house was −6° Fahrenheit. The temperature at 2 p.m. at Sam's house was 2° Fahrenheit.

Select from the drop-down menus to correctly complete the statement.

From 10 a.m. to 2 p.m., the temperature at Sam's house Choose... by Choose... ° Fahrenheit.

Choose...
increased
decreased

Choose...
3
4
8
12

TEI: Hot Spot Table Task

Ed is a farmer who charges $3.75 for 5 pounds of cabbage. This table shows the rates charged for cabbage by some other farmers.

Determine whether the unit rate charged for cabbage by the other farmers is less than, equal to, or greater than the unit rate charged by Ed.

Select one cell per row.

	Unit Rate Less than Ed's Unit Rate	Unit Rate Equal to Ed's Unit Rate	Unit Rate Greater than Ed's Unit Rate
Farmer A: \$0.50 for $\frac{1}{2}$ pound	☐	☐	☐
Farmer B: \$0.75 for 1 pound	☐	☐	☐
Farmer C: \$1.75 for $2\frac{1}{2}$ pounds	☐	☐	☐
Farmer D: \$6.00 for 8 pounds	☐	☐	☐

Type II Constructed-Response Task

The table represents a proportional relationship.

x	*y*
6	7.5
8	10.0
10	12.5

A student states that the constant of proportionality is 2.5 since 10 – 7.5 = 2.5.

- Explain why the student's reasoning is incorrect.
- Find the correct constant of proportionality. Show your work or explain your answer.

Enter your explanations, your answer, and your work in the box provided.

EQ

Type III Constructed-Response Task

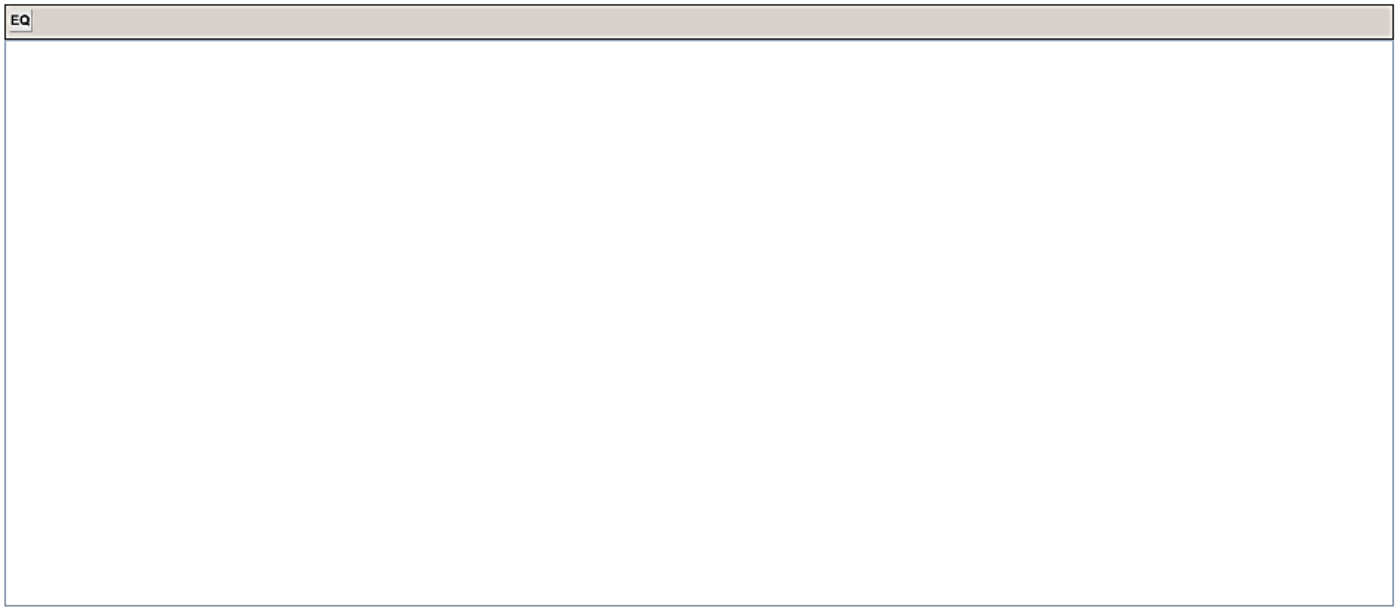
Rita gets paid $16 per hour for the first 8 hours she works each day. She earns $1\frac{1}{2}$ times her hourly pay rate for time she works over 8 hours each day. Rita's work day for Monday is described in the list.

- worked from 8:15 a.m. to 12:45 p.m.
- took a 45-minute lunch break
- worked until 6:15 p.m.

Rita does not get paid for her lunch break.

How much money did Rita earn for the time she worked on Monday? Show or explain all of the steps you used to determine your answer.

Enter your answer and your work or explanation in the space provided.

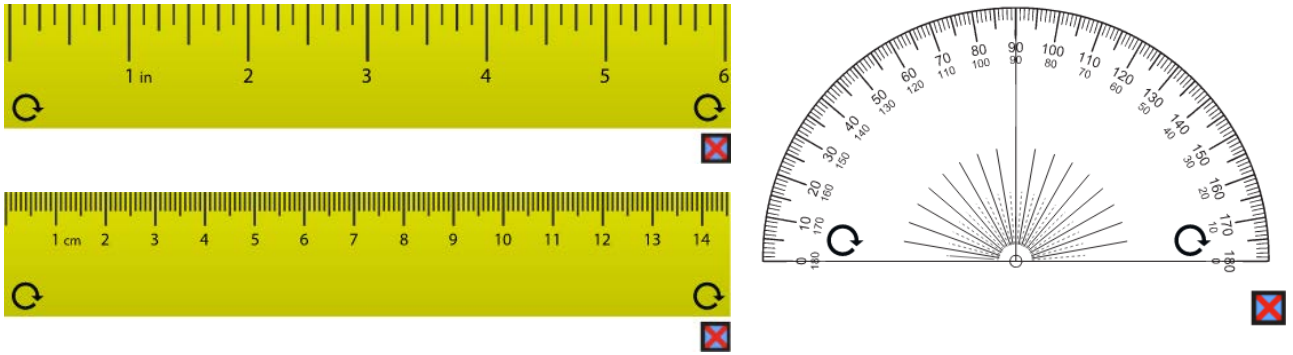


Permitted Testing Materials

The chart that follows summarizes the tools and resources for the grade 7 mathematics assessment.

Tools	Provided	Session 1	Sessions 2 & 3	Guidelines
scratch paper (lined, graph, un-lined), two pencils	by Test Administrator	YES	YES	• Reference sheets may be printed from *eDIRECT* • Tools provided by Test Administrator must not be written on • See Calculator Policy for calculator specifications
$\frac{1}{8}$ –inch ruler, centimeter ruler, and protractor	online	YES	YES	
calculator	online and/or by Test Administrator	NO	YES	
Grade 7 Mathematics Reference Sheet	online and/or by Test Administrator	YES	YES	

Grade 7 rulers and protractor provided on the LEAP 2025 CBT (not actual size):



To ensure accurate measurement, the size of the computer-based ruler and protractor, along with the object being measured, varies depending on the computer monitor's resolution. To practice with the computer-based ruler and protractor, visit the Online Tools Training (available in INSIGHT or here using the Chrome browser).

Calculator Policy

The LEAP 2025 mathematics test allows a four-function calculator in grade 7 during Sessions 2 and 3. Calculators are **not** allowed during Session 1 of the test. For students with the approved accommodation, a hand-held four-function calculator is allowed during all test sessions. The following table includes calculator information by session for both general testers and testers with approved accommodations for calculator use.

<table>
<tr><th>Calculator Policy</th><th>Session 1</th><th>Sessions 2 & 3</th></tr>
<tr><td>General Testers</td><td>Not allowed</td><td rowspan="2">Four-function calculator available online, may also have hand-held</td></tr>
<tr><td>Testers with approved accommodation for calculator use</td><td>Must be provided hand-held four-function calculator</td></tr>
<tr><td colspan="3">Additional information for testers with approved accommodations for calculator use:
If a student needs an adaptive calculator (e.g., large key, talking), the student may bring his or her own or the school may provide one, as long as it is specified in his or her approved IEP or 504 Plan.</td></tr>
</table>

Additionally, schools must adhere to the following guidance regarding calculators.

- Four-function calculators may have square root, percent, memory, and +/- keys.
- Calculators with the following features are **not** permitted:
    - Computer Algebra System (CAS) features
    - "QWERTY" keyboards
    - paper tape
    - talk or make noise, unless specified in IEP/IAP
    - tablet, laptop (or PDA), phone-based, or wristwatch
- Students are **not** allowed to share calculators within a testing session.
- Test administrators must confirm that memory on all calculators has been cleared before and after the testing sessions.
- The student should use the calculator they have used regularly throughout the school year in their classroom and are most familiar with, provided their regular-use calculator is not outside the boundaries of what is allowed.
- If schools or districts permit students to bring their own hand-held calculators, test administrators must confirm that the calculators meet all the requirements as defined above.

Reference Sheet

Students in grade 7 will be provided a reference sheet with the information below. The Grade 7 Mathematics Reference Sheet may be printed from *e*Direct or found in the assessment guidance library on page 3 of LEAP 2025 Grades 5-HS Mathematics Reference Sheets.

Grade 7 Mathematics Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$

Requisite Knowledge

Students in grade 7 will be required to know relative sizes of measurement units within one system of units. Therefore, the following requisite knowledge is necessary for the grade 7 assessments and is **not** provided in the reference sheet.

1 meter = 100 centimeters
1 meter = 1000 millimeters
1 kilometer = 1000 meters
1 kilogram = 1000 grams

1 gram = 1000 milligrams
1 liter = 1000 milliliters
1 foot = 12 inches
1 yard = 3 feet

1 day = 24 hours
1 minute = 60 seconds
1 hour = 60 minutes
Area formulas for rectangles

RESOURCES

- Online Tools Training: (*Updated Fall to include short equation input*) provides teachers and students examples of interactive, technology-enhanced items so they can become familiar with the computer-based testing format; available in INSIGHT or here using the Chrome browser; includes Spanish version
- LEAP 2025 Grade 7 Math Computer-Based Practice Test and Answer Key: offers a computer-based grade-level practice test to help prepare students for the spring assessments; accessed through INSIGHT; Spanish version also available
- LEAP 2025 Grades 5-HS Mathematics Reference Sheets: includes all the mathematics references sheets provided for LEAP 2025 testing for grades five through eight and high school
- LEAP 2025 Accessibility and Accommodations Manual: provides information about Louisiana's accessibility features and accommodations for grades 3–8 spring testing
- LEAP 2025 Math Practice Test Guidance: provides teachers with information about test structure, recommended uses, general cautions, item types, and scoring
- LEAP 2025 Equation Builder for Grades 6-8: provides teachers with information on using the equation builder within the open-response boxes on the CBT; Spanish version also available
- Practice Test Quick Start Guide: provides information regarding the administration and scoring process needed for the online practice tests
- Technology Enhanced Item Types Available in INSIGHT: provides a one-page summary chart of technology enhanced items students may encounter in any of the computer-based tests across courses and grade-levels
- Practice Tests Library: includes current and previous years' practice tests for additional practice with assessment tasks
- Grades 6–8 Math Teacher Library: provides links to grade-specific resources, such as the standards, shared teacher resources, and instructional plans
- K-12 Louisiana Student Standards for Math: explains the development of and lists the math content standards for Louisiana students
- Grade 7 math - Teachers Companion Document PDF or word doc: contains descriptions of each standard to answer questions about the standard's meaning and how it applies to student knowledge and performance
- Grade 7 Remediation Guide: reference guide for teachers to help them more quickly identify the specific remedial standards necessary for every standard, includes information on content emphasis
- Grade 7 Crosswalk: shows specifically how the math standards have changed from 2015-2016 to 2016-2017
- K-12 LSSM Alignment to Rigor: provides explanations and a standards-based alignment to assist teachers in providing a rigorous education
- EAGLE Sample Test Items: provides teachers a bank of questions that can be used for instructional and assessment purposes

APPENDIX A

Assessable Content for the Major Content Reporting Category (Type I)

LSSM Content Standards	
7.RP.A	Analyze proportional relationships and use them to solve real-world and mathematical problems.
7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction* $^{1/2}/_{1/4}$ *miles per hour, equivalently 2 miles per hour*.
7.RP.A.2	Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn*. d. Explain what a point (*x*, *y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where r is the unit rate.
7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems of simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, and percent error.
7.NS.A	Apply and extend previous understandings of operations with fractions.
7.NS.A.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers.
7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers.[2]
7.EE.A	Use properties of operations to generate equivalent expressions.
7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients to include multiple grouping symbols (e.g., parentheses, brackets, and braces).
7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*
7.EE.B	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation*.
7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?* b. Solve word problems leading to inequalities of the form $px + q > r$, $px + q \geq r$, $px + q < r$, or $px + q \leq r$ where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions*.

[2] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

Assessable Content for the Additional & Supporting Content Reporting Category (Type I)

LSSM Content Standards	
7.G.A	Draw construct, and describe geometrical figures and describe the relationships between them.
7.G.A.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.A.2	Draw (freehand, with ruler and protractor, or with technology) geometric shapes with given conditions. (Focus is on triangles from three measures of angles or sides, noticing when the conditions determine one and only one triangle, more than one triangle, or no triangle.
7.G.A.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
7.G.B	Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
7.G.B.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (Pyramids limited to surface area only.)
7.SP.A	Use random sampling to draw inferences about a population.
7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be*.
7.SP.B	Draw informal comparative inferences about two populations.
7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities using quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
7.SP.B.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book*.
7.SP.C	Investigate chance processes and develop, use, and evaluate probability models.
7.SP.C.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

7.SP.C.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times*.
7.SP.C.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected*. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
7.SP.C.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

Assessable Content for the Expressing Mathematical Reasoning Reporting Category (Type II)

LEAP 2025 Evidence Statements	
LEAP.II.7.1	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in • 7.NS.A.1, 7.NS.A.2 – Students need not use property names. • 7.EE.A.1 – Students need not use property names.
LEAP.II.7.2	Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in • 7.NS.A.1, 7.NS.A.2
LEAP.II.7.3	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in • 7.NS.A
LEAP.II.7.4	Base explanations/reasoning on a coordinate plane diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in • 7.RP.A – Tasks are limited to coordinates in Quadrant 1 and a positive constant of proportionality.

LEAP.II.7.5	Given an equation, present the solution steps as a logical argument that concludes with the set of solutions (if any). Content Scope: Knowledge and skills articulated in • 7.EE.B.4a
LEAP.II.7.6	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in • 7.RP.A.2 – Tasks are limited to coordinates in Quadrant 1 and a positive constant of proportionality. • 6.NS.C, 6.EE.A, 6.EE.B – Tasks may have scaffolding.[3]
LEAP.II.7.7	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in • 7.RP.A.3 – Tasks are limited to coordinates in Quadrant 1 and a positive constant of proportionality. • 7.NS.A.2d - Tasks focus on demonstrating understanding that a number is rational and do not directly assess the ability to divide two whole numbers. • 7.NS.A.3 • 7.EE.B.3

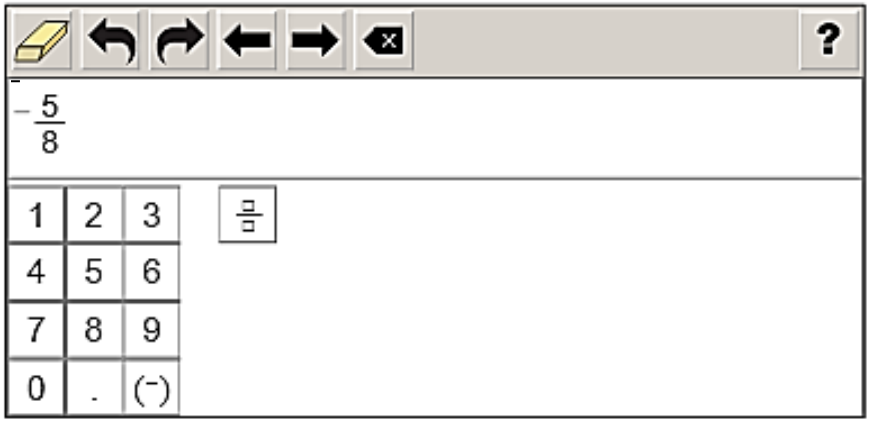
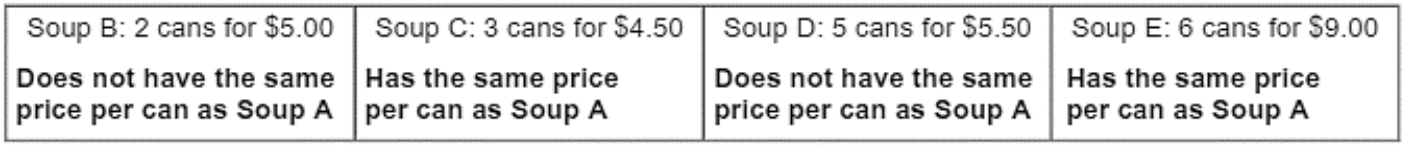
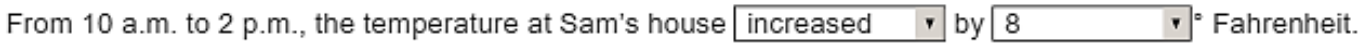
Assessable Content for the Modeling & Applications Reporting Category (Type III)

LEAP 2025 Evidence Statements	
LEAP.III.7.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 7, requiring application of knowledge and skills articulated by the LSSM section of the Major Content Assessable Content table. Tasks may have scaffolding.[3] Tasks involving writing or solving an equation should not go beyond the equation types described in 7.EE.4a ($px + q = r$ and $p(x + q) = r$ where p, q, and r are specific rational numbers).
LEAP.III.7.2	Solve multi-step contextual problems with degree of difficulty appropriate to grade 7, requiring application of knowledge and skills articulated in 6.RP.A, 6.EE.C, 6.G. Tasks may have scaffolding.[3]
LEAP.III.7.3	Micro-models: Autonomously apply a technique from pure mathematics to a real-world situation in which the technique yields valuable results even though it is obviously not applicable in a strict mathematical sense (e.g., profitably applying proportional relationships to a phenomenon that is obviously nonlinear or statistical in nature) requiring knowledge and skills articulated by the LSSM section of the Major Content Assessable Content table. Tasks may have scaffolding.[3]
LEAP.III.7.4	Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity requiring knowledge and skills articulated by the LSSM section of the Major Content Assessable Content table. Tasks may have scaffolding.[3]

[3] Scaffolding in a task provides the student with an entry point into a pathway for solving a problem. In unscaffolded tasks, the student determines his/her own pathway and process.

APPENDIX B

Answer Key/Rubrics for Sample Items

Item Type	Key	Alignment
Multiple-Choice	C	7.NS.A.1c
Multiple-Select	B, C, D	7.SP.C.7a
Fill-in-the-Blank	4	7.NS.A.3
Short Equation Input	 (or equivalent)	7.EE.B.4a
TEI: Drag-and-Drop		7.RP.A.2a
TEI: Dropdown Menu		7.NS.A.3

<table>
<tr><th>Item Type</th><th>Key</th><th>Alignment</th></tr>
<tr><td>TEI: Hot Spot Table</td><td>
<table>
<tr><th></th><th>Unit Rate Less than Ed's Unit Rate</th><th>Unit Rate Equal to Ed's Unit Rate</th><th>Unit Rate Greater than Ed's Unit Rate</th></tr>
<tr><td>Farmer A: \$0.50 for $\frac{1}{2}$ pound</td><td>☐</td><td>☐</td><td>☑</td></tr>
<tr><td>Farmer B: \$0.75 for 1 pound</td><td>☐</td><td>☑</td><td>☐</td></tr>
<tr><td>Farmer C: \$1.75 for $2\frac{1}{2}$ pounds</td><td>☑</td><td>☐</td><td>☐</td></tr>
<tr><td>Farmer D: \$6.00 for 8 pounds</td><td>☐</td><td>☑</td><td>☐</td></tr>
</table>
</td><td>7.RP.A.2b</td></tr>
<tr><td>Type II Constructed-Response</td><td>See Rubric</td><td>LEAP.II.7.6</td></tr>
<tr><td>Type III Constructed-Response</td><td>See Rubric</td><td>LEAP.III.7.1</td></tr>
</table>

Type II Constructed-Response Rubric

Score	Description
3	Student response includes each of the following 3 elements. • Computation component: 1 point o Correctly determines the constant of proportionality as 1.25 or equivalent • Reasoning component: 2 points o Correctly explains why the student's reasoning is incorrect o Correct work or explanation for calculating the constant of proportionality Sample Student Response: The student's reasoning is incorrect because he or she used subtraction between only one quantity to find the constant of proportionality. Since the table is proportional, the ratio between *y* and *x* values will be the same. This will be the constant of proportionality. $y/x = 10/8 = 1.25$ $y/x = 7.5/6 = 1.25$ The constant of proportionality is 1.25. Note: One example of correct work is sufficient for credit.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

Type III Constructed-Response Rubric

Score	Description
3	Student response includes each of the following 3 elements. • Computation component: 1 point o Correctly calculates how much money was earned on Monday: $158 • Modeling component: 2 points o Correctly models a process for determining the total number of hours worked Note: It is not necessary to show the total hours of 9.25 if the two correct subtotals are given. o Correctly models a process for determining the total dollar amount earned, including overtime Sample Student Response: Rita worked from 8:15 a.m. to 12:45 p.m., or 4 ½ hours before lunch. She worked from 1:30 p.m. to 6:15 p.m., or 4 ¾ hours after lunch. The total time Rita worked on Monday was 4 ½ + 4 ¾ = 9 ¼ hours. Rita worked 1 ¼ hours beyond 8 hours, so she is paid overtime for that time. Rita is paid $16 per hour for the first 8 hours she worked and ($16)(1 ½) = $24 per hour for the 1 ¼ overtime hours she worked. The total dollar amount she earned on Monday is $16 (8) + $24 (1 ¼) = $128 + $30 = $158. Notes: • The student may receive a total of 2 modeling points if the modeling processes are correct but the student makes one or two computational errors resulting in an incorrect answer. • The student may receive a total of 1 modeling point if the modeling processes are correct but the student makes more than two computational errors resulting in an incorrect answer.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.