LOUISIANA DEPARTMENT OF EDUCATION

Office of Assessments, Accountability, and Analytics

LEAP Assessment Guide for Grade 3 Mathematics

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Purpose

This document is designed to assist Louisiana educators in understanding the LEAP Grade 3 Mathematics assessment.

Introduction

All students in grades 3–8, Algebra I, and Geometry will take the LEAP assessments, which provide

- questions that have been reviewed by Louisiana educators to ensure their alignment to the K-12 Louisiana Student Standards for Mathematics and appropriateness for all Louisiana students;
- measurement of the full range of student performance; and
- information for educators and parents about student readiness in mathematics and whether students are “on track” for college and careers.

Vision for Mathematics Standards and Assessment

Students in Louisiana are ready for college or a career if they are able to meet college and workplace expectations without needing remediation in mathematics skills and concepts. The K-12 Louisiana Student Standards for Mathematics support students to become mathematically proficient by focusing on three components of rigor: conceptual understanding, procedural skill and fluency, and application.

- **Conceptual understanding** refers to understanding mathematical concepts, operations, and relations. It is more than knowing isolated facts and methods. Students should be able to make sense of why a mathematical idea is important and the kinds of contexts in which it is useful. It also allows students to connect prior knowledge to new ideas and concepts.
- **Procedural skill and fluency** is the ability to apply procedures accurately, efficiently, and flexibly. It requires speed and accuracy in calculation while giving students opportunities to practice basic skills. Students' ability to solve more complex application tasks is dependent on procedural skill and fluency.
- **Application** provides a valuable context for learning and the opportunity to solve problems in a relevant and a meaningful way. It is through real-world application that students learn to select an efficient method to find a solution, determine whether the solution(s) makes sense by reasoning, and develop critical thinking skills.

Assessment Design

Supporting Mathematics Instruction

The LEAP mathematics assessments focus on testing the LSSM according to the components of rigor reflected in high-quality mathematics instructional materials that

- require students to demonstrate understanding of mathematical reasoning in mathematical and applied contexts;
- assess accurate, efficient, and flexible application of procedures and algorithms;
- rely on application of procedural skill and fluency to solve complex problems; and
- require students to demonstrate mathematical reasoning and modeling in real-world contexts.

Assessable Content

Each item on the LEAP mathematics assessments is referred to as a task and is identified by one of three types: Type I, Type II, or Type III. All task types are aligned directly to the K-12 Louisiana Student Standards for Mathematics. Type I tasks are further aligned to LEAP mathematics evidence statements for the Major Content and Additional & Supporting reporting categories and allow for the testing of more than one of the student standards on a single task. Type II and III tasks are further aligned to LEAP mathematics evidence statements for the Mathematical Reasoning & Modeling reporting category.

- **Type I tasks** are designed to assess conceptual understanding, fluency, and application, and are aligned to the major, additional, and supporting content for the grade or course.
- **Type II tasks** are designed to assess student reasoning ability of selected content in applied contexts.
- **Type III tasks** are designed to assess student modeling ability of selected content in applied contexts.

LEAP Mathematics Evidence Statements

LEAP mathematics evidence statements are labeled to include the task type (I, II, or III) and the grade (3, 4, 5, 6, 7, or 8) or course (A1 or GM). LEAP evidence statements for grade 3 are labeled as "LEAP.I.3.#" for Type I tasks, "LEAP.II.3.#" for Type II tasks, and "LEAP.III.3.#" for Type III tasks. See the table in Appendix A for a listing of assessable content of the LSSM and LEAP mathematics evidence statements.

Item Types

All of the item types below will appear on both the PBT and CBT, with the exception of technology-enhanced.

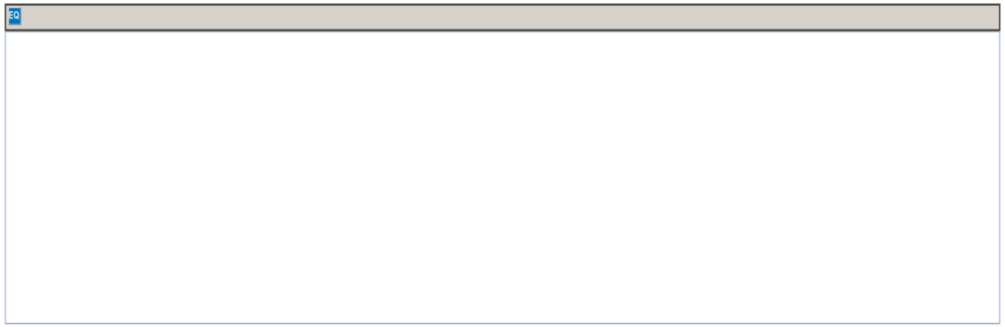
- Multiple-Choice (MC) – This item type asks students to choose one correct answer and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. The MC items are worth one point.

- Multiple-Select (MS) – This item type asks students to choose **more than one** correct answer and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. Whenever this item type is used, the question **always identifies** in boldface print the number of correct answers required. The MS items are worth one point. Students must choose **all correct answers and no incorrect answer** must be chosen to receive credit.

- Short Answer (SA) – This item type asks students to key numeric answers into an entry box using the keyboard and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. The SA items are worth one point. Unless specified in the question, a student will earn credit for an answer that is equivalent to the correct numerical answer. Answers to SA items must be entered as whole numbers or in decimal form.

- Technology-Enhanced (TE) – This item type appears only on the CBT and uses technology to capture student responses. TE items may appear as a one-part question, as part of a two-part question, or as a part of a CR item. The TE items are worth one point. The Online Tools Training (OTT) allows students to practice answering the TE questions to prepare for the CBT. For a summary of the different styles of technology-enhanced items refer to the LEAP Technology-Enhanced Item Types document.

- Constructed Response (CR) – This item type can be a single- or multi-part item. CR items ask students to create a written explanation or justification, model a process, and/or compute an answer to earn a series of points. A student may receive partial or full credit on CR items and maximum point values will vary by CR task. Maximum values for CR items are 3, 4, or 6 points. When responding to a computer-based CR item, students will type their responses into a response box, like the one shown below.



Response Box

The response box allows students to use the keyboard to type in their response or work. There is a limit to the number of characters that can be typed into the response box; however, it is set well beyond what a student might produce based on grade-specific expectations of the item. The toolbar at the top of the response box has the Equation Builder tool that allows the students to create a response with commonly used grade-specific mathematical symbols.

Equation Builder

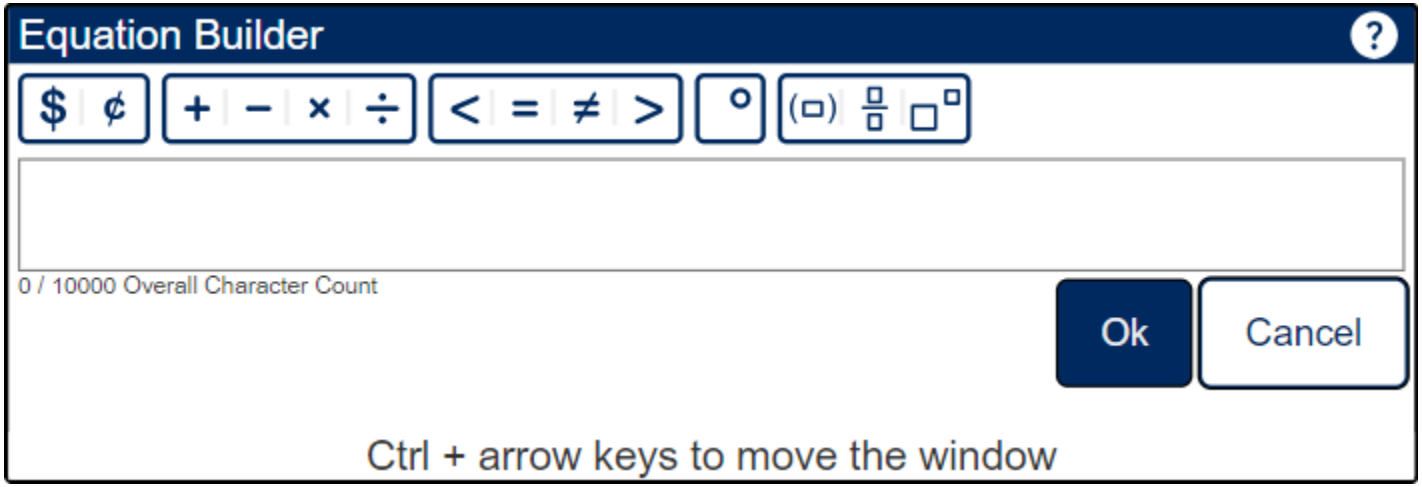
Students are not required to use the equation builder for any symbols that are also available on the keyboard.

For example, students may use a slash, forward / or back \, to represent a fraction, a carat ^ to represent exponents, or a dash – to represent subtraction. The degree ° and cents ¢ symbols are not available on the keyboard, but students may type the words “degrees” and “cents” as necessary.

The Equation Builder does not include all symbols/characters students might need to type into the open response box. Students should know how to type a question mark ? and a colon : using the keyboard.

Using the Equation Builder

- To enter text, click the pointer in the **Response Box** and type text using the keyboard.
- Click on the **Equation Builder** button to open the tool and enter any mathematical symbols, characters, or format.
- When finished, click on the **OK** button in the lower-right corner of the Equation Builder tool – the equation will be entered into the response box.
- To cancel what you have entered, click on the **Cancel** button in the lower-right corner of the Equation Builder tool and you will be returned to the response box.
- To edit an existing equation, double-click on the equation in the Response Box. This will re-open the Equation Builder.



Test Design

The LEAP mathematics assessment in grade 3 contains a total of 37 tasks for 52 points. The table shows the breakdown of the number of tasks and point values by Reporting Category and Session. The LEAP mathematics test is **timed**. No additional time is permitted, except for students who have a documented extended time accommodation (e.g., an IEP).

Reporting Category	Session 1		Session 2		Session 3		Total	
	Tasks	Points	Tasks	Points	Tasks	Points	Tasks	Points
A - Major Content	8-9	9	7-9	9	9	9	24-27	27
B - Additional & Supporting Content	3-4	4	2-3	3	2	2	7-9	9
C - Mathematical Reasoning & Modeling	1	4	1	6	2	6	4	16
Total Operational	13	17	11	18	13	17	37	52
Total Field-Test	1-2	N/A	1	N/A	1-2	N/A	3-5	N/A
Session Time	65 minutes		65 minutes		65 minutes		195 minutes	

Note: The test contains field-test tasks, which **do not** count toward the test score; they provide information that will be used to 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 Points	
Type I	1-point	30	30	36	58%	70%
	2-point	3	6		11.5%	
Type II	3-point	1	3	7	6%	13%
	4-point	1	4		7%	
Type III	3-point	1	3	9	6%	17%
	6-point	1	6		11.5%	
Total		37	52		100%	

Reporting Categories

Each of the three task types is aligned to one of three reporting categories: Major Content, Additional & Supporting Content, or Mathematical Reasoning & Modeling. 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
Type I	conceptual understanding, fluency, application	**A - Major Content:** solve problems involving the major content for grade 3 **B - Additional & Supporting Content:** solve problems involving the additional and supporting content for grade 3	may align with any or all practices
Type II	written argument/justification, critique of reasoning/precision in mathematical statements	**C - Mathematical Reasoning & Modeling:** express mathematical reasoning by constructing mathematical arguments and critiques; solve real-world problems engaging particularly in the modeling practice	primarily MP.3, MP.4, and MP.6, but may also involve any of the other practices
Type III	modeling or application in a real-world context		

The Major Content reporting category is divided, based on Achievement Level Descriptors, into the following subcategories.

Subcategory	LSSM and LEAP Mathematics Evidence Statements	Description
Products and Quotients/Solve Multiplication and Division Problems	3.OA.A.1, 3.OA.A.2, 3.OA.A.3, 3.OA.A.4, 3.OA.B.6, 3.OA.C.7	Students understand and interpret products and quotients of whole numbers. Students fluently multiply and divide within 100 to determine unknown whole numbers in multiplication or division problems and to solve word problems.
Solve Problems with Any Operation	3.OA.D.8, LEAP.I.3.2, LEAP.I.3.3	Students solve word problems using the four operations, including rounding where appropriate and represent problems using equations with a letter standing for an unknown quantity.
Fractions as Numbers and Equivalence	3.NF.A.1, 3.NF.A.2, 3.NF.A.3, LEAP.I.3.1	Students understand the concept of a fraction, recognize and generate equivalent fractions, and compare fractions. Students interpret and represent fractions on a number line diagram.
Solve Time, Area, Measurement, and Estimation Problems	3.MD.A.1, 3.MD.A.2, 3.MD.C.5, 3.MD.C.6, 3.MD.C.7, LEAP.I.3.4	Students measure, estimate, and solve word problems involving intervals of time, liquid volumes, and masses of objects using the four operations. Students understand the concept of area measurement and determine area from various representations.

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 content and practices, which may help identify when students need additional support or more challenging work;
- student performance in Major Content broken down by content subcategories, which may help teachers and schools hone in on specific content for professional development; and
- how well schools and schools systems are helping students achieve higher expectations.

Achievement-Level Definitions

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

- **Advanced:** Students performing at this level have **exceeded** college and career readiness expectations and are well prepared for the next level of study 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 study 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 study 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 study 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 study in this content area.

Achievement Level Descriptors

Achievement Level Descriptors (ALDs) indicate what a typical student at each level should be able to demonstrate based on his or her command of grade-level standards. ALDs are written for the four assessment reporting categories. Access the ALDs in the Assessment Resources Webpage for a breakdown of the knowledge, skills, and practices associated with each achievement level.

Test Administration

Administration Information

The testing window opens April 1, 2027, and runs through May 12, 2027 for all computer-based tests. The school or district test coordinator will communicate each school's testing schedule. For updates to the testing schedule, refer to the 2026-2027 Louisiana Assessment Calendar. All LEAP assessments are **timed**. No additional time is permitted, except for students who have a documented extended time accommodation (e.g., an IEP).

Scheduling Requirements for Computer-Based Testing

Computer-based testing allows school systems some flexibility in scheduling. However, to reduce incidences of testing irregularities, school systems **must** adhere to the following scheduling and administration practices:

- Testing students in the same grade level across the school at or very close to the same time
- Completing makeup testing for students immediately upon their return
- Limiting student interaction during breaks between test sessions
- Isolating students who have not completed testing for the day (e.g., students with extended time accommodation)
- Preventing interaction between groups of students taking the same tests at different times within a testing day
- Requiring the completion of a session once it is opened (i.e., limiting the reopening of test sessions)
- Taking the sessions within a content area in the correct order (e.g., Math Session 1 taken before Math Session 2)

The following is also recommended:

- Limiting sessions to no more than three in one day for a student

For more information about scheduling and administration policies, refer to the Online Assessment Scheduling Guidance, found in the LDOE Assessment Resources Webpage.

Administration Schedule for Paper-Based Testing

The table below shows the paper-based testing schedule for grade 3.

Test Dates	Subjects and Sessions	Test Time
Wednesday, April 07, 2027	English Language Arts, Session 1	75 minutes
	Mathematics, Session 1	65 minutes
Thursday, April 08, 2027	English Language Arts, Session 2	45 minutes
	Mathematics, Session 2	65 minutes
Friday, April 09, 2027	English Language Arts, Session 3	45 minutes
	Mathematics, Session 3	65 minutes
Monday, April 12, 2027	Science, Session 1	70 minutes
	Science, Session 2	70 minutes
Tuesday, April 13, 2027	Social Studies, Session 1	80 minutes
	Social Studies, Session 2	80 minutes

Spanish Mathematics Guidelines

Spanish-language versions of the LEAP mathematics assessments are available as an accommodation for Spanish-speaking English learners. The following guidelines should be used when assigning a student to a Spanish-language mathematics assessment. The student should meet at least one of the following criteria:

- Student whose primary language is Spanish and who receives instruction in Spanish
- Student who is a recently arrived EL and had prior instruction in mathematics in Spanish
- Student who is enrolled in a dual-language immersion program that includes mathematics taught in Spanish

Consideration of the following is strongly urged when deciding which version of the mathematics assessment form (i.e., English-language or Spanish-language version) is best for a Spanish-speaking student.

- The language in which a student receives instruction affects their performance.
- A Spanish-speaking student who is not receiving instruction in Spanish may not have knowledge of math-specific terms translated to Spanish.
- A Spanish-speaking student may not have the literacy skills required to read in Spanish (speaking Spanish is not the same as reading Spanish).

If a teacher is unsure whether the Spanish-language version is appropriate for a specific student, it is recommended that the student take one session of the LEAP mathematics practice test in English and one session in Spanish in order to determine the language in which the student is most comfortable.

Testing Materials

The chart that follows summarizes the tools and resources for the grade 3 mathematics assessment.

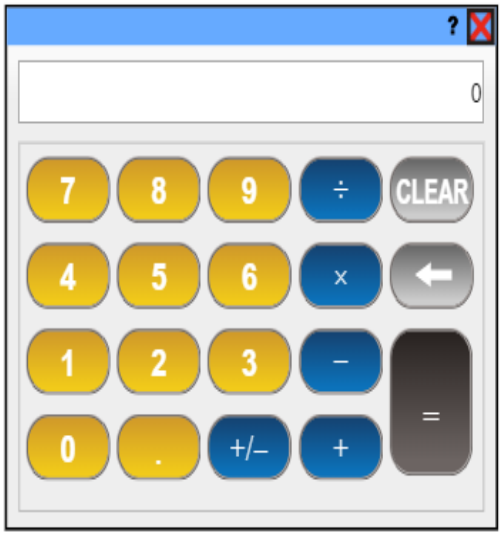
Tools	Provided	Guidelines
scratch paper (lined, graph, or unlined), yellow highlighter	by Test Administrator	• All tools available for all sessions • Tools provided by Test Administrator must not be written on
$\frac{1}{4}$ –inch ruler	online	

Calculator Policy

Students are **not** allowed to use calculators during the administration of any mathematics test in grades three through five.

For students with the approved accommodation for calculator use, a four-function calculator must be provided for all sessions.

- Square root, percent, memory, and +/- keys are also allowed, but not required.
- An online calculator (shown) will be available for all sessions, but a hand-held calculator is allowed.
- 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 IAP.
- 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, as detailed above.
- If schools or school systems 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 3 will not have a reference sheet because the LSSM for this grade does not require one.

Measurement Tools

Testing Platform

Students taking the computer-based tests will enter their answers into the online testing system. The way each answer is entered depends on the task type. The computer-based tests include the following online tools, which allow a student to select answer choices, "mark" tasks, eliminate answer options, highlight specific information, take notes, enlarge the task, guide the reading of a task line by line, use a ruler, apply a mask to cover a part of their screen, 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

- Cross-off

- Highlighter

- Sticky note

- Magnifier

- Line guide

- Measurement Tools

- Masking

- Help

- Equation Builder

Note: The images to the left represent both ways students will see the online tools. All tools, except the equation builder, will have a white background. When a student hovers the curser over the icon, it will change the background to blue as shown.

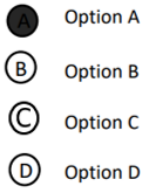
All students taking the computer-based test should work through the Online Tools Training, using the online tools so students are well prepared to navigate the online testing system.

Paper-Based Tests

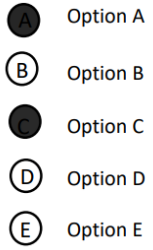
Students taking the paper-based tests will enter all answers in their test booklets. There will be no separate answer documents. Instructions for how to manage the test booklets will be outlined in the Test Administration Manual.

Entering Responses in the Test Booklet

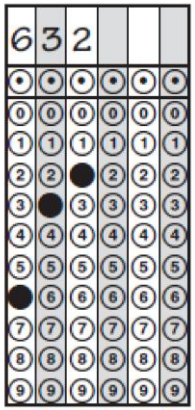
Multiple-choice questions for grade 3 have four answer options. Students will shade the bubble of the **one** correct answer.



Multiple-select questions for grade 3 have five or six options. Students will fill in the number of correct answers identified in the stem of the question. **The number of correct answers will vary from item to item.** The sample asks for two correct answers.



Short Answer (SA) tasks have grids for students to write the answer. Each digit of a whole number is written in the boxes at the top of the grid, starting with the first box on the left. Students will then shade the bubble in the column that corresponds to the digit in the top row. Blank spaces within the answer and commas are not allowed. Grade 3 students will not be required to enter responses with decimals, and should ignore the decimal row. Should a student mistakenly start in a column other than column 1, the entry will be scored as correct if it is mathematically correct, contains no spaces within the answer, and fits within the remaining columns.



Fractional Answers: Type I tasks with potential fractional answers in PBT forms will be presented in multiple-choice or multiple-select formats. Students are expected to be able to correctly write and apply fractions in Type II and Type III constructed-response tasks.

General Guidelines

When answering Type II and Type III tasks, students need to make sure to write their explanations and/or to show their work in the box provided for each question. Any information written outside the box or has been scratched out will not be scored. The following information presents guidelines for marking/writing in the LEAP consumable test booklet.

- Students may write and do scratch work in the test booklet, but must avoid making stray marks in the answer circles on the multiple-choice and multiple-select tasks or in the short answer grids.
- Students may use yellow highlighters to highlight text in the test booklet.
- Highlighting text in options and placing an X to the right of the text in an option are recommended ways for students to eliminate options. However, crossing out options could create scoring issues if students mark through answer circles.

Sample Test Items

Sample Computer-Based Test Items

This section includes six Type I tasks and one Type III task as they would appear on a CBT form. The answer keys for each Type I task and scoring rubric for the Type III task are located in Appendix B. Look for these tasks in the OTT.

Multiple-Choice Task

Maya's rectangular rug has a perimeter of 16 feet.

What is the width of the rug?

(a) 3 feet

(b) 9 feet

(c) 11 feet

(d) 13 feet

Multiple-Select Task

Which shapes are quadrilaterals?

Select the **three** correct answers.

(a) triangle

(b) rhombus

(c) pentagon

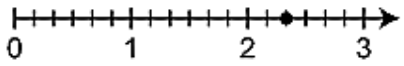
(d) hexagon

(e) square

(f) trapezoid

Short Answer Task

Look at the point on the number line.

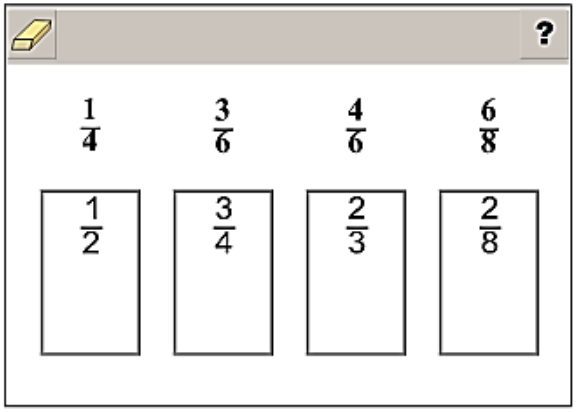


The denominator for the point on the number line is 6. What is the numerator?

Enter your answer in the box.

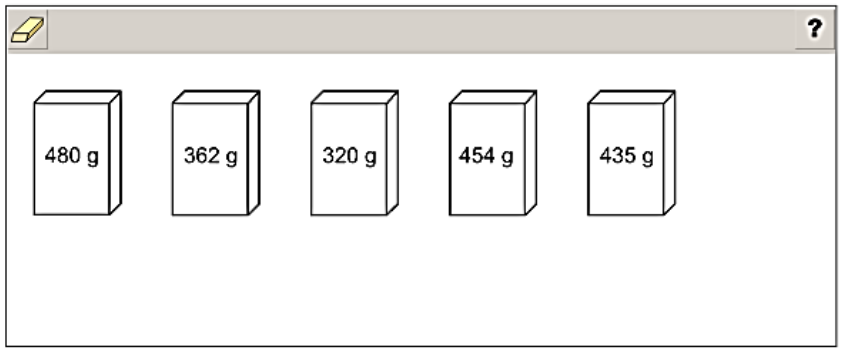
TE: Drag-and-Drop Task

Drag and drop each fraction into the box labeled with an equivalent fraction.



TE: Hot Spot Select Task

A scientist weighs food to list on packaging. A box of pasta weighs 400 grams when rounded to the nearest 100. Select **two** boxes that could be the weight of the box of pasta.



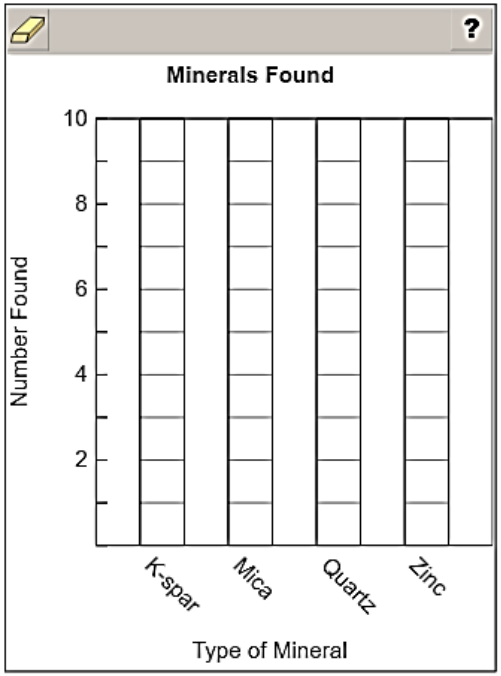
TE: Bar Graph Task

Lars is finding different types of minerals. The table below shows how many minerals he finds.

Minerals Found

Type of Mineral	Number Found
K-spar	4
Mica	2
Quartz	8
Zinc	6

Make a bar graph showing the total number of each kind of mineral Lars finds.



Type III Constructed-Response Task

Part A

Nolan has 16 pennies in one jar and 94 pennies in another jar.

He uses some of the pennies to buy a pencil that costs 25 cents. What is the total number of pennies Nolan has left after he buys the pencil? Show your work.

Enter your answer and your work in the box provided.

EQ

Part B

Nolan saves some more pennies and now has 187 pennies all in one jar. He finds 10 more pennies in his pocket.

What is the total number of pennies Nolan has after he adds the 10 pennies from his pocket to the jar?

Enter your answer in the box.

Part C

The table shows the number of pennies Nolan saved each week for four weeks.

Pennies Saved Each Week

Week	Number of Pennies
Week 1	18
Week 2	40
Week 3	32
Week 4	25

What is the total number of pennies Nolan saved during the four weeks? Show your work.

Enter your answer and your work in the box provided.

EQ

Sample Paper-Based Test Items

This section includes three Type I tasks and one Type II task as they would appear on a PBT form. The answer key for each Type I task and scoring rubric for the Type II task are located in Appendix B.

Multiple Choice Task

Maya's rectangular rug has a perimeter of 16 feet. The length of the rug is 5 feet. What is the width of the rug?

- Ⓐ 3 feet
- Ⓑ 9 feet
- Ⓒ 11 feet
- Ⓓ 13 feet

Multiple-Select Task

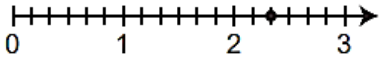
Which shapes are quadrilaterals?

Select the **three** correct answers.

- Ⓐ triangle
- Ⓑ rhombus
- Ⓒ pentagon
- Ⓓ hexagon
- Ⓔ square
- Ⓕ trapezoid

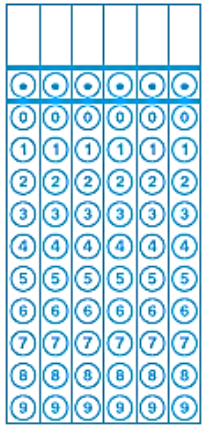
Short Answer

Look at the point on the number line.



The denominator for the point on the number line is 6. What is the numerator?

Enter your answer in the box.



Type II Constructed-Response Task

Use the information provided to answer Part A and Part B for question 1.

Cindy is finding the quotient for 27 ÷ 9. She says, “The answer is 18 because addition is the opposite of division and 9 + 18 = 27.”

Part A

Identify the incorrect reasoning in Cindy’s statement.

Enter your explanation in the box provided.

Part B

Show or explain how Cindy can correct her reasoning.

Find the quotient when 27 is divided by 9.

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

Resources

Assessment Guidance Webpage

- LEAP Equation Builder for Grades 3-5: provides teachers with information on using the equation builder; Spanish
- LEAP Grades 5-HS Mathematics Reference Sheets: includes all the mathematics references sheets provided for LEAP testing
- Assessment Development Educator Review Committees: describes the item development process and associated committees, includes information on applying for participation

Practice Test Webpage

- LEAP Grade 3 Mathematics PBT Practice Test and Answer Key: helps students prepare for the tests and includes answer keys, scoring rubrics, and alignment information; Spanish (test, key)
- LEAP Grade 3 Mathematics CBT Practice Test Answer Key: includes answer keys, scoring rubrics, and alignment information; Spanish
- LEAP Mathematics Practice Test Guidance: provides guidance on using the mathematics practice tests to support instructional goals
- Practice Test Quick Start Guide: provides information regarding administration and scoring of the online practice tests

Assessment Resources Webpage

- LEAP Accessibility and Accommodations Manual: provides information about accessibility features and accommodations
- LEAP Technology Enhanced Item Types: provides a summary of technology enhanced items
- Achievement Level Descriptors: descriptions of the knowledge, skills, and cognitive processes that students should demonstrate with relative consistency and accuracy at each level of achievement
- LEAP 360: non-summative assessment system; includes diagnostic and interim assessments

DRC INSIGHT Portal (eDIRECT):

- Includes access to tutorials, manuals, and user guides

INSIGHT ^{TM}

- Online Tools Training: allows students to become familiar with the tools available in the online testing platform; also available through this link using the Chrome browser
- LEAP Grade 3 Practice Test: helps prepare students for the tests

K-12 Louisiana Math Webpage

- K-12 Louisiana Student Standards for Mathematics: explains the development of and lists the math content standards for Louisiana students
- Grade 3 Mathematics - Teachers Companion Document 2.0: contains descriptions of each standard to answer questions about the standard's meaning and how it applies to student knowledge and performance
- Grade 3 Learning Acceleration Guidance: identifies remedial standards, includes information on content emphasis
- K-12 LSSM Alignment to Rigor: provides explanations and a standards-based alignment to assist teachers in providing a rigorous education
- Math Formative Assessment Items: instructional resources in grade-level documents that teachers can download and incorporate into their daily instruction. (Password to access the document is Educate2020).

Contact the LDOE

- assessment@la.gov for assessment questions
- classroomsupporttoolbox@la.gov for curriculum and instruction questions
- AskLDOE for general questions
- ldoecommunications@la.gov to subscribe to newsletters; include the newsletter(s) you want to subscribe to in your email

Newsroom: archived copies of newsletters including LDOE Weekly School System Newsletters and Teacher Leader Newsletters

Appendix A

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

LSSM Content Standards	
■ 3.OA.A	■ Represent and solve problems involving multiplication and division.
3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*
3.OA.A.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 a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*
3.OA.A.3	Use multiplication and 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.[1]
3.OA.A.4	Determine the unknown whole number in a multiplication or 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 = ?*
■ 3.OA.B	■ Understand properties of multiplication and the relationship between multiplication and division.
3.OA.B.6	Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*
■ 3.OA.C	Multiply and divide within 100.
3.OA.C.7	Fluently multiply and 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. By the end of Grade 3, know from memory all products of two one-digit numbers.
■ 3.OA.D	■ Solve problems involving the four operations, and identify and explain patterns in arithmetic.
3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.[2]
■ 3.NF.A	■ Develop understanding of fractions as numbers.
3.NF.A.1	Understand a fraction 1/*b*, with denominators 2, 3, 4, 6, and 8, as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.

[1] See LSSM Table 2, p. 61.

[2] This standard is limited to problems posed with whole numbers and having whole-number answer; students should know how to perform operations in conventional order when there are no parentheses to specify a particular order (Order of Operations).

3.NF.A.2	Understand a fraction with denominators 2, 3, 4, 6, and 8 as a number on the number line; represent fractions on a number line diagram. a. 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. 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. b. Represent a fraction *a*/*b* on a number line diagram by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.
3.NF.A.3	Explain equivalence of fractions with denominators 2, 3, 4, 6, and 8 in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. 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.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. 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.
■ 3.MD.A	■ Solve problems involving measurement and estimation.
3.MD.A.1	Understand time to the nearest minute. a. Tell and write time to the nearest minute and measure time intervals in minutes, within 60 minutes, on an analog and digital clock. b. Calculate elapsed time greater than 60 minutes to the nearest quarter and half hour on a number line diagram. c. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
3.MD.A.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[3] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[4]
■ 3.MD.C	■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
3.MD.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. 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.
3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in., square ft., and improvised units).

[3] Excludes compound units such as cm^3 and finding the geometric volume of a container
[4] Excludes multiplicative comparison problems (problems involving notions of "times as much"; see LSSM Table 2, p. 61)

3.MD.C.7	Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. 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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
LEAP Evidence Statements	
LEAP.I.3.1	In a contextual situation involving a whole number and two fractions not equal to a whole number, represent all three numbers on a number line diagram, then choose the fraction closest in value to the whole number. Content Scope: Knowledge and skills articulated in • 3.NF.A – Fractions equivalent to whole numbers are limited to 0 - 5.
LEAP.I.3.2	Given a two-step problem situation with the four operations, round the values in the problem, then use the rounded values to produce an approximate solution. Content Scope: Knowledge and skills articulated in • 3.OA.D.8, 3.NBT.A.1, 3.NBT.A.2, 3.NBT.A.3 – Tasks must be aligned to 3.OA.D.8 and 1 or more of the following standards: 3.NBT.A.1, 3.NBT.A.2, 3.NBT.A.3. Tasks do not require computations beyond the grade 3 expectations. Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions (see LSSM, Table 1, Common Addition and Subtraction Situations, p.60; LSSM, Table 2, Common Multiplication and Division Situations, p. 61; and K–5 Progression on Counting and Cardinality and Operations and Algebraic Thinking).
LEAP.I.3.3	Solve two-step word problems using the four operations requiring a substantial[5] addition, subtraction, or multiplication step, drawing on knowledge and skills articulated in 3.NBT. Content Scope: Knowledge and skills articulated in • 3.OA.D.8, 3.NBT.A.2, and 3.NBT.A.3 – Tasks must be aligned to 3.OA.D.8 and 1 or more of the following standards: 3.NBT.A.2, 3.NBT.A.3. Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions (see LSSM, Table 1, Common Addition and Subtraction Situations, p.60; LSSM, Table 2, Common Multiplication and Division Situations, p. 61; and K–5 Progression on Counting and Cardinality and Operations and Algebraic Thinking).

[5] Values should be towards the higher end of the numbers identified in the standards.

LEAP.I.3.4	Add, subtract, or multiply to solve a one-step word problem involving masses or volumes that are given in the same units, where a substantial[5] addition, subtraction, or multiplication step is required drawing on knowledge and skills articulated in 3.NBT, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. Content Scope: Knowledge and skills articulated in • 3.MD.A.2, 3.NBT.A.2, and 3.NBT.A.3 – Tasks must be aligned to 3.MD.A.2 and 1 or more of the following standards: 3.NBT.A.2, 3.NBT.A.3.

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

LSSM Content Standards	
○ 3.NBT.A	○ Use place value understanding and properties of operations to perform multi-digit arithmetic.[6]
3.NBT.A.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
3.NBT.A.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3.NBT.A.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.MD.B	◘ Represent and interpret data.
3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets*.
3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units — whole numbers, halves, or quarters.
○ 3.MD.D	○ Geometric measurement: recognize perimeter.
3.MD.D.8	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
◘ 3.MD.E	◘ Work with money.
3.MD.E.9	Solve word problems involving pennies, nickels, dimes, quarters, and bills greater than one dollar, using the dollar and cent symbols appropriately.
◘ 3.G.A	◘ Reason with shapes and their attributes.
3.G.A.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

[6] A range of algorithms may be used.

3.G.A.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*
LEAP Evidence Statements	
LEAP.I.3.5	Solve real world and mathematical problems involving perimeters of polygons requiring a substantial[5] addition, subtraction, or multiplication step, drawing on knowledge and skills articulated in 3.NBT. Content Scope: Knowledge and skills articulated in • 3.MD.D.8, 3.NBT.A.2, and 3.NBT.A.3 – Tasks must be aligned to 3.MD.D.8 and 1 or more of the following standards: 3.NBT.A.2, 3.NBT.A.3.
LEAP.I.3.6	Use information presented in a scaled bar graph to solve a two-step "how many more" or "how many less" problem requiring a substantial[6] addition, subtraction, or multiplication step, drawing on knowledge and skills articulated in 3.NBT. Content Scope: Knowledge and skills articulated in • 3.MD.B.3, 3.NBT.A.2, and 3.NBT.A.3 – Tasks must be aligned to 3.MD.B.3 and 1 or more of the following standards: 3.NBT.A.2, 3.NBT.A.3.

Assessable Content for Mathematical Reasoning & Modeling Reporting Category (Type II, Type III)

LEAP Evidence Statements – Type II	
LEAP.II.3.1	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in • 3.OA.B.5– Students need not use formal property names. Products and related quotients are limited to the 10 by 10 multiplication table.[7] • 3.OA.D.9– Students need not use formal property names. • 3.MD.C.7a, 3.MD.C.7b, 3.MD.C.7c – Tasks may include those with and without real-world contexts. Students need not use formal property names.
LEAP.II.3.2	Base explanations/reasoning on the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in • 3.OA.B.6 – Products and related quotients are limited to the 10 by 10 multiplication table.
LEAP.II.3.3	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in • 3.NF.A.3b, 3.NF.A.3d – Fractions equivalent to whole numbers are limited to 0 - 5. Tasks may present realistic or quasi-realistic images of a contextual situation (e.g., a drawing of a partially filled graduated cylinder). However, tasks do not provide the sort of abstract drawings that help the student to represent the situation mathematically (e.g., a number line diagram or other visual fraction model).

[7] For example, 2 × 4 × 5, would be acceptable as students can use the associative property to rewrite the expression as 8 × 5 which falls within the content limits of grade 3. The problem 7 × 4 × 5 would exceed the content limits of grade 3 because any use of the associative property would result in a 2-digit multiplier.

LEAP.II.3.4	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in • 3.MD.C.5, 3.MD.C.6, 3.MD.C.7a, 3.MD.C.7b, 3.MD.C.7c – Tasks may include those with and without real-world contexts. Tasks with a context may present realistic or quasi-realistic images of a contextual situation (e.g., a drawing of a meadow). However, tasks do not provide the sort of abstract drawings that help the student to represent the situation mathematically (e.g., a tiling of the meadow).
LEAP.II.3.5	Distinguish correct explanation/reasoning from that which is flawed, and – if there is a flaw in the argument – present corrected reasoning. (For example, some flawed 'student' reasoning is presented and the task is to correct and improve it.) Content Scope: Knowledge and skills articulated in • 3.OA.B.5 – Students need not use formal property names. Products and related quotients are limited to the 10 by 10 multiplication table. • 3.OA.B.6 – Products and related quotients are limited to the 10 by 10 multiplication table. • 3.OA.D.8 – Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions (see LSSM, Table 1, Common Addition and Subtraction Situations, p.60; LSSM, Table 2, Common Multiplication and Division Situations, p. 61; and K–5 Progression on Counting and Cardinality and Operations and Algebraic Thinking). • 3.NF.A.3b, 3.NF.A.3d – Fractions equivalent to whole numbers are limited to 0 - 5. • 3.MD.C.7a, 3.MD.C.7b, 3.MD.C.7c – Tasks may include those with and without real-world contexts. • 3.OA.D.9 • 2.NBT – Tasks may have scaffolding.[8] Tasks will not assess "relate the strategy to a written method" previously in standard 2.NBT.B.7.

[8] 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.

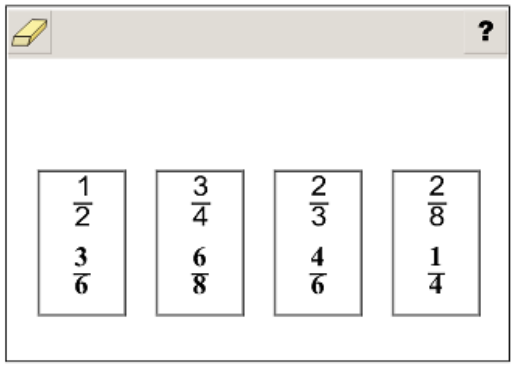
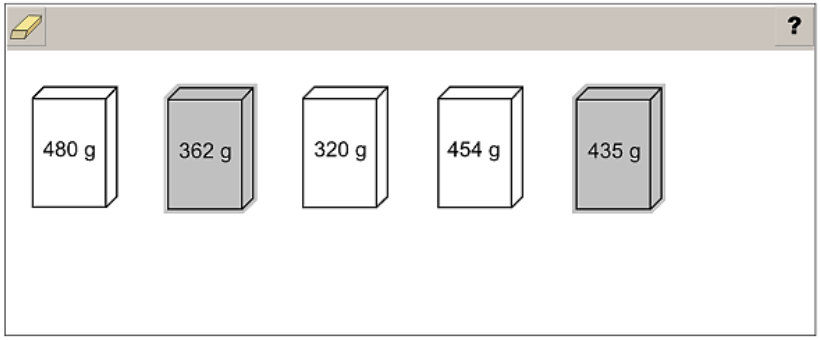
LEAP.II.3.6	Present solutions to two-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to two-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in • 3.OA.D.8 – Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions (see LSSM, Table 1, Common Addition and Subtraction Situations, p.60; LSSM, Table 2, Common Multiplication and Division Situations, p. 61; and K–5 Progression on Counting and Cardinality and Operations and Algebraic Thinking).
LEAP.II.3.7	Present solutions to multi-step[9] 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 • 3.MD.C.7b - Tasks may include those with and without real-world contexts.
LEAP.II.3.8	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 • 3.NF.A.2 - Fractions equivalent to whole numbers are limited to 0 - 5. • 3.MD.A.1

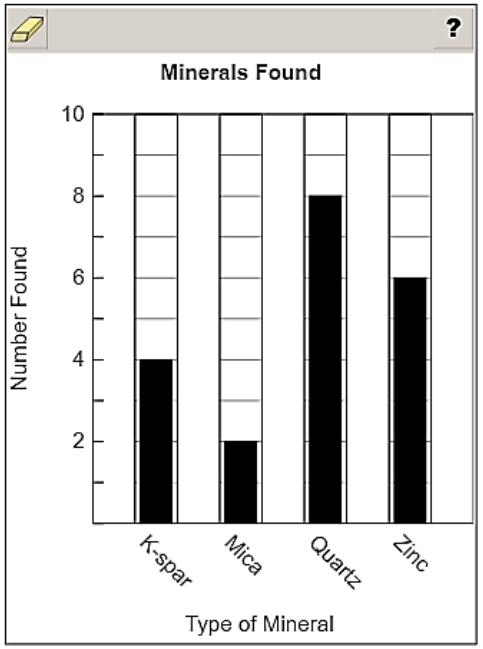
LEAP Evidence Statements – Type III	
LEAP.III.3.1	Solve multi-step[9] contextual word problems with degree of difficulty appropriate to Grade 3, requiring application of knowledge and skills articulated by the LSSM section of the Major Content Assessable Content table. Tasks may have scaffolding.[8]
LEAP.III.3.2	Solve multi-step[9] contextual problems with degree of difficulty appropriate to Grade 3, requiring application of knowledge and skills articulated in 2.OA.A, 2.OA.B, 2.NBT, and/or 2.MD.B. Tasks may have scaffolding.[8]

[9] Multi-step must have at least three steps.

Appendix B

Answer Key/Rubrics for Sample Items

PBT/CBT	Item Type	Key	Alignment
PBT/CBT	Multiple-Choice	A	3.MD.D.8
PBT/CBT	Multiple-Select	B, E, F	3.G.A.1
PBT/CBT	Short Answer	14	3.NF.A.2b
PBT/CBT	Type II Constructed-Response	See Rubric	LEAP.II.3.5
CBT	TE: Drag-and-Drop		3.NF.A.3b
CBT	TE: Hot Spot Select		3.NBT.A.1

PBT/CBT	Item Type	Key	Alignment
CBT	TE: Bar Graph		3.MD.B.3
PBT/CBT	Type III Constructed-Response	See Rubric	LEAP.III.3.2

Type II Constructed-Response Rubric

PART A	
Score	**Description**
1	Reasoning component: The student correctly identifies the error in Cindy's statement. For example: "Cindy thought addition was the opposite of division."
0	Student response is incorrect or irrelevant
PART B	
Score	**Description**
2	Student response includes each of the following 2 elements. • Reasoning component: The student explains that multiplication is the opposite of division. For example: "To find the quotient of 27 ÷ 9, I need to know what number when multiplied by 9 has a product of 27." • Computation component: 27 ÷ 9 = 3 Notes: • The student does not need to use the term "unknown factor" in his or her explanation. • The equation does not have to be provided to receive credit as long as the student shows clear understanding of using an unknown factor problem to find the answer to a division problem. • The student may provide only the equation for the computation part. • The student may earn credit for another valid explanation, such as repeated addition or subtraction. • The computation may be embedded within the reasoning.
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant

Type III Constructed-Response Rubric

PART A	
Score	**Description**
3	Student response includes each of the following 3 elements. • Computation component: 85 pennies • Modeling component: shows correct use of addition • Modeling component: shows correct use of subtraction Sample Solution 1: Addition of pennies in two jars (16 + 94 = 110) and then subtraction of pencil price from that sum (110 – 25 = 85). OR Subtraction of pencil price from pennies in one jar (94 – 25 = 69) and then addition of the pennies in the other jar to the difference (69 + 16 = 85) Notes: • Student can get credit for both parts with a single equation such as 16 + 94 – 25 = 85. • Student does not need to show an equation, but if an equation is used, the equation must be correct. (e.g., 16 + 94 = 110 – 25 = 85 is considered a nonsense equation and is NOT acceptable.)
2	Student response includes 2 of the 3 elements. Or, the student has a computation error, but provides a valid strategy.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant
PART B	
Score	**Description**
1	Computation component: 197
0	Student response is incorrect.
PART C	
Score	**Description**
2	Student response includes each of the following 2 elements. • Computation component: 115 pennies • Modeling component: The student shows a valid strategy to find the total number of pennies. For example, the student shows the equation 18 + 40 + 32 + 25 = 115
1	Student response includes 1 of the 2 elements. Or, the student has a computation error, but provides a valid strategy.
0	Student response is incorrect or irrelevant