Louisiana Believes

Eureka Remediation Tools

DEPARTMENT of EDUCATION

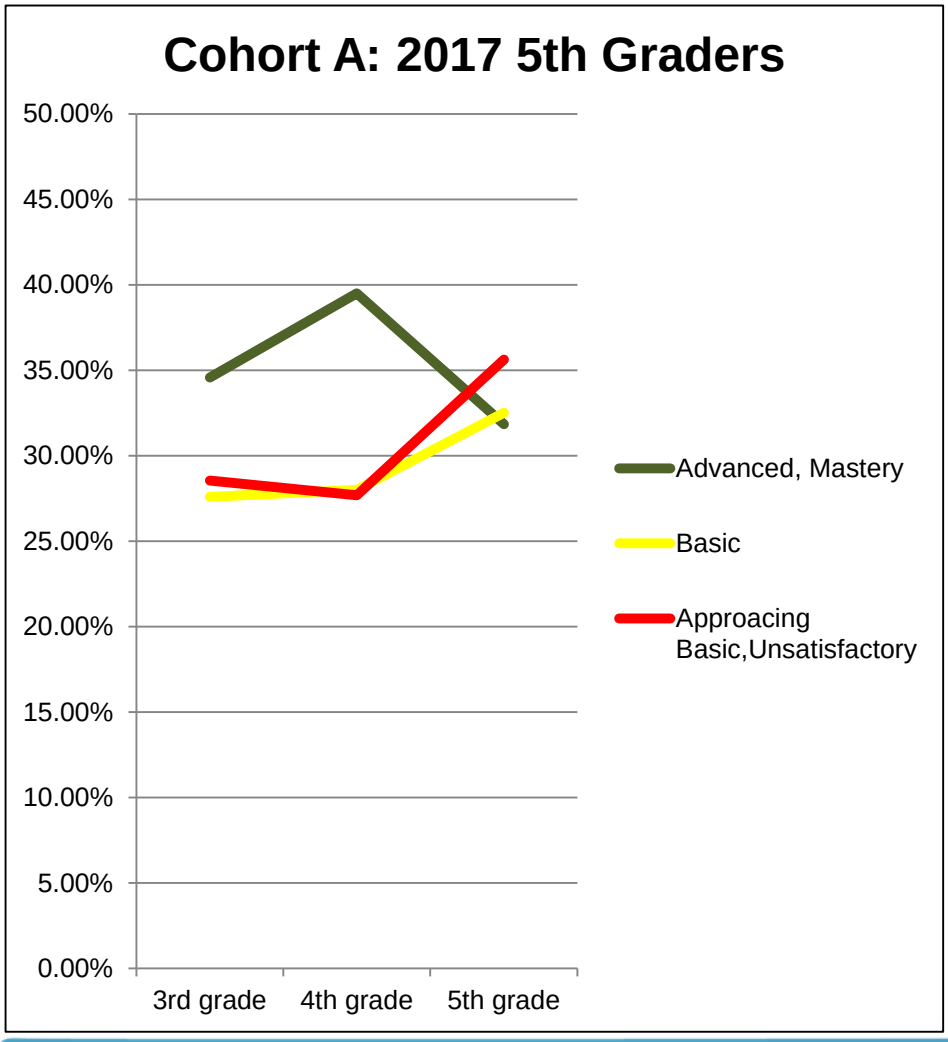
Objectives

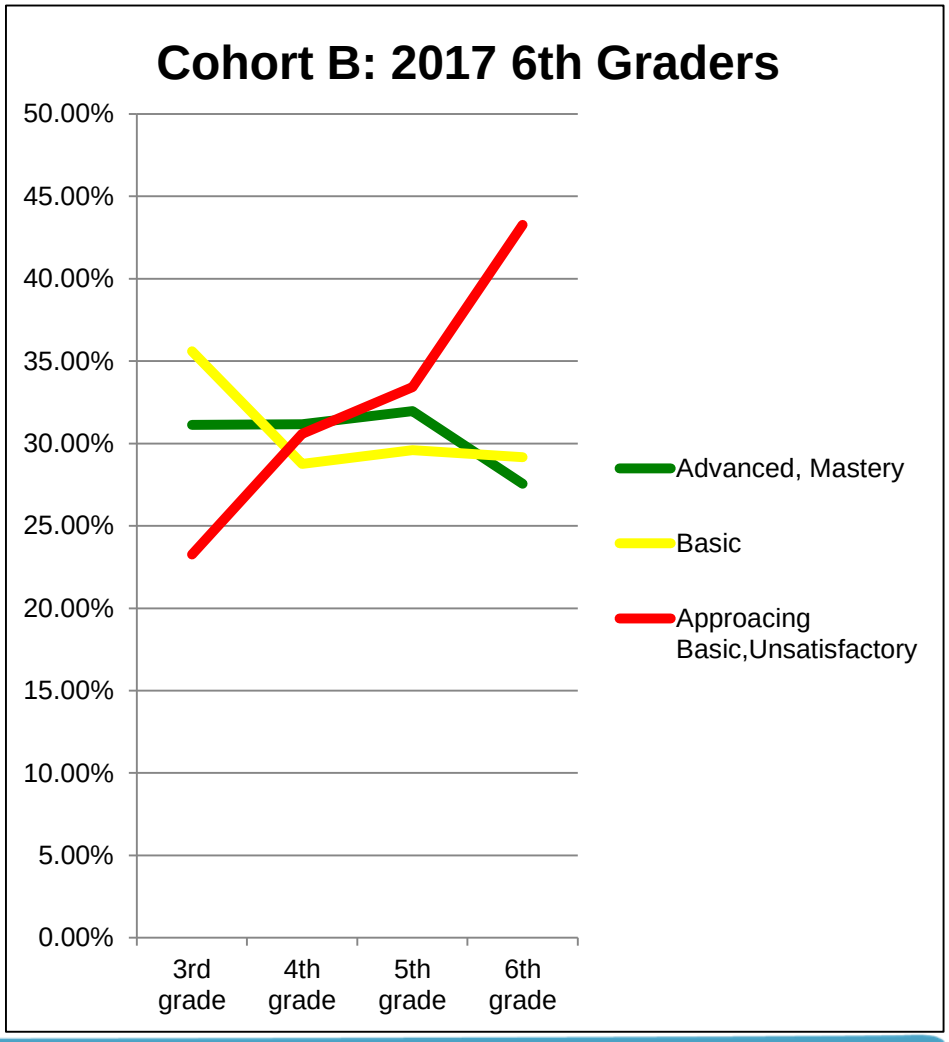
- This session is designed to improve the quality of implementation of Eureka Math by helping teachers understand how to leverage the Eureka curriculum from previous grades for remediation.
- This session will explore and challenge traditional mindsets around remediation in the mathematics classroom, then introduce the new Eureka Remediation Tools as a tool to combat common misconceptions about remediation. Participants will practice using a tool, analyzing sample student work to diagnose gaps in understanding and skills and create a specific plan to respond.

Agenda

1. Current State of Mathematics
2. Dangerous Mindsets for Remediation
3. Eureka Remediation Tools
4. Assessment Updates and Support
5. Reflections and Next Steps

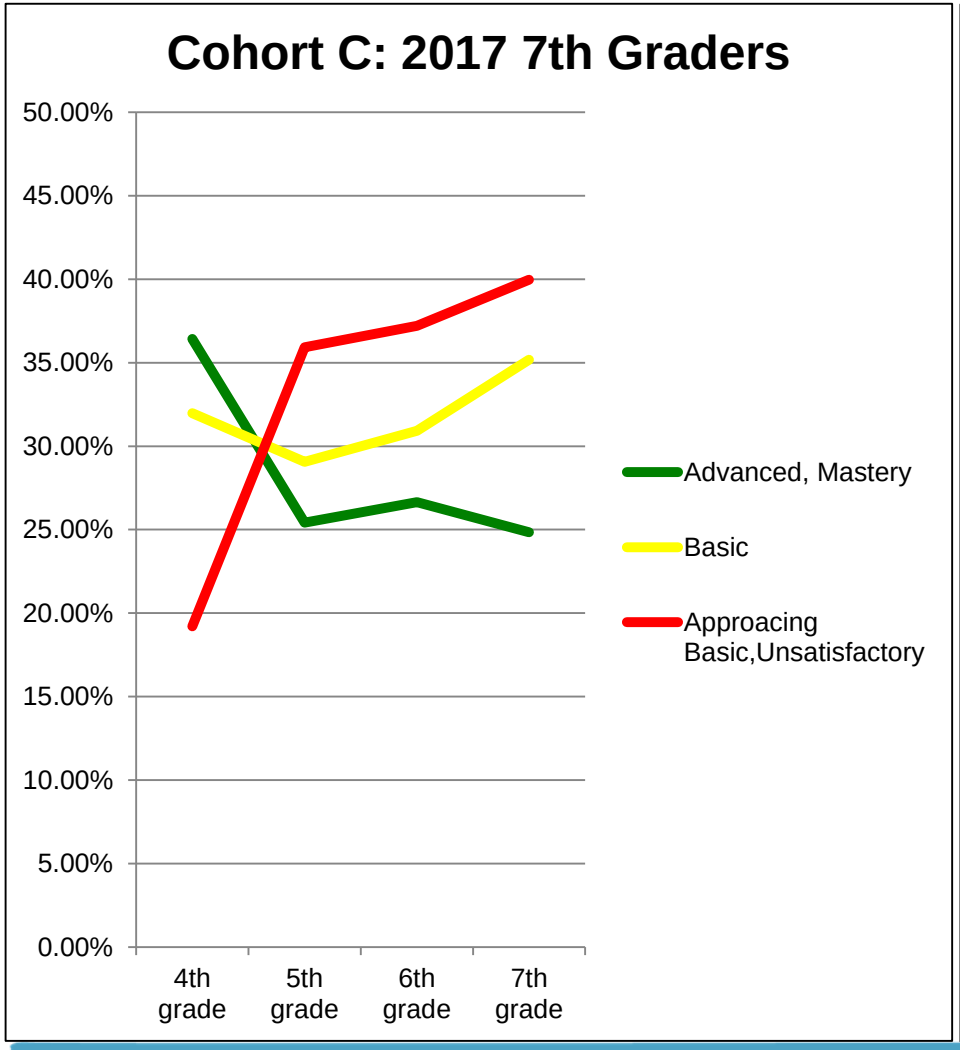
Louisiana Data Trends for Cohorts

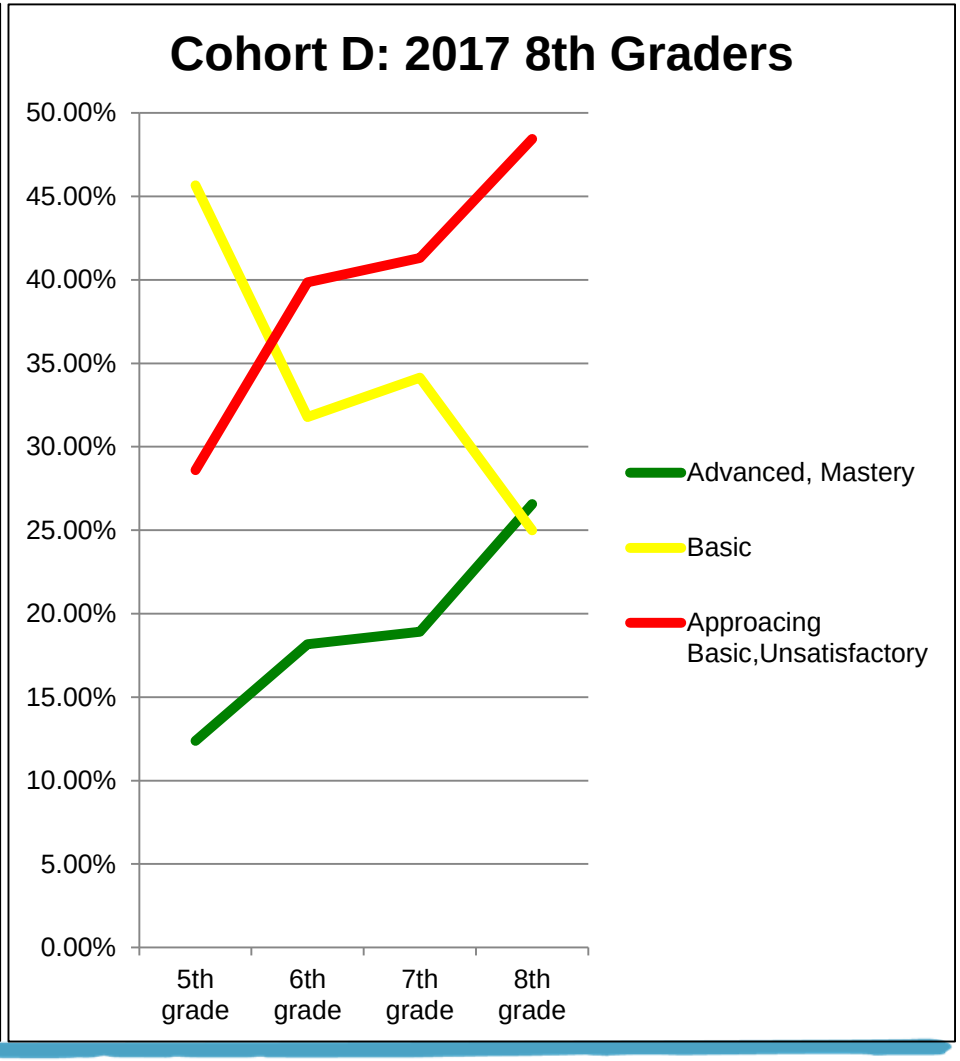




Contact LouisianaStandards@la.gov with questions.

Louisiana Data Trends for Cohorts





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Louisiana Data Trends for Cohorts

What do the data show?

1. An increase in the number of students scoring below Basic, resulting in an average of more than 40% of our students scoring below Basic in 2017.
2. Fewer students are mastering the grade-level content.
3. A greater number of students are beginning each year at a deficit, needing targeted remediation to ensure access to and mastery of new grade-level content.
4. The remediation techniques/strategies/programs we are currently employing do not appear to be working.

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Important Mindsets for Supporting Struggling Students

Discuss:

1. When and how does math remediation/intervention happen at your school? What is working well and what is not?
2. How is instruction for below-grade-level students different from instruction for students who are on or above grade-level?

Dangerous Mindset No. 1

My students are really far behind in math and there's no time to teach them the math conceptually. I have to show students the quickest, easiest way to get the right answer so that they can catch up.

Dangerous Mindset No. 1

1. What do you notice about how the standards progress across grades?
2. What implications does this have for remediation/ intervention?

Addition/Subtraction of Whole Numbers - *Standards progression*

KEY: Conceptual Standard | Conceptual/Procedural Standard | Procedural Standard

4			Fluently add multi-digit whole numbers using the standard algorithm. (4.NBT.B.4)	Fluently subtract multi-digit whole numbers using the standard algorithm. (4.NBT.B.4)
3			Fluently add within 1000 using strategies and algorithms based on place value, properties, and relationships. (3.NBT.A.2)	Fluently subtract within 1000 using strategies and algorithms based on place value, properties, and relationships. (3.NBT.A.2)
2	Fluently add within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. (2.NBT.B.5)	Fluently subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. (2.NBT.B.5)	Add w/in 1000 using concrete or visual models and other strategies (2.NBT.B.7)	Subtract w/in 1000 using concrete or visual models and other strategies (2.NBT.B.7)
			Explain why addition and subtraction strategies work, using place value and the properties of operation. (2.NBT.B.9)	
			Understand three-digit numbers are composed of hundreds, tens, and ones. (2.NBT.A.1)	
1	Add within 100 using concrete or visual models properties, and relationships. (1.NBT.C.4)	Subtract multiples of 10 using concrete or visual models properties, and relationships. (1.NBT.C.6)		

Dangerous Mindset No. 2

My students don’t know their math facts so they’re not ready for on-grade-level standards. I have to get them caught up on the math facts first.

Dangerous Mindset No. 2

Agree or Disagree? Students need to be solid with time tables before they can solve this problem:

$$3 \times \frac{2}{5}$$

Note: This is a 4th grade problem.

How would you solve this problem?

Dangerous Mindset No. 2

4.NF.B.4a — Understand Fractions as Multiples of Unit Fractions

Understand a fraction a/b as a multiple of 1/b. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* (4.NF footnote: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12 and 100.)

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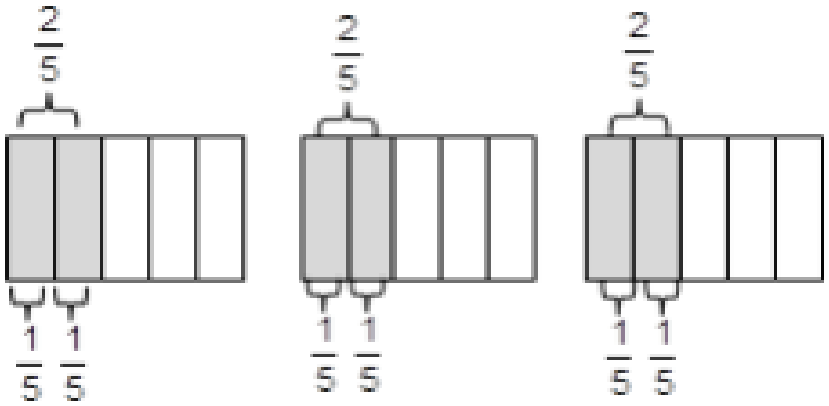
Dangerous Mindset No. 2

What it should look like:

Examples:

- $3 \times \frac{2}{5} = 6 \times \frac{1}{5} = \frac{6}{5}$



Dangerous Mindset No. 3

I can’t teach my grade-level content until I’ve filled the gaps with previous grade-level content.

Key Messages

1. Teaching procedures without building conceptual understanding flies in the face of the standards and does not help below-grade-level students.
2. Often, students do not need to master “math facts” before learning standards on their grade level. Closely analyzing the standards is the only way to find out.
3. All students can engage with grade-level work even with gaps in prior grade-level skills. Some prior grade-level content is prerequisite work, while other prior grade-level content can be mastered while studying on-grade-level content.

All students need to spend as much time as possible engaging with on grade-level content!

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Eureka Remediation Tools

- Available for prioritized topics in Grades 4-8 and Algebra I
- Include 3 diagnostic questions for prior grade level standards that are foundational for new content
- Point teachers to portions of prior grade level Eureka lessons that can be used to target the gaps that are revealed
- Can be used within core math class, intervention time, or a combination

Recommended Approach

Diagnose

- Embed diagnostic questions in instruction/assessment prior to starting the new module/topic
- Determine what gaps exist and whether they are for the whole class or a small group

Understand

- Study how the foundational standard relates to the new content
- Understand whether the gap can be addressed alongside upcoming material or if it must come before

Take Action

- Whole class needs: plan to build needed scaffolds into upcoming lessons. If needed, adjust pacing calendar to add in additional lessons
- Small group needs: plan differentiated instruction or coordinate to address gaps within intervention periods

Analyzing Student Work from Diagnostic Questions

1. Read the “Diagnostic Assessment” section on page 2 of the Eureka Remediation Tool.
2. Review the sample student work to determine where gaps exist.

Analyzing Student Work from Diagnostic Questions

Part A: 4.NBT.A.1:

1. Write a number where the value of the 4 is ten times the value of the 4 in the number 62,347.

   4 x 10 = 40

2. Write a number where the value of the 2 is ten times the value of the 2 in the number 62,347.

   2 x 10 = 20

3. Write a number where the value of the 6 is ten times the value of the 6 in the number 62,347.

   6 x 10 = 60

Analyzing Student Work from Diagnostic Questions

Part B: 4.NBT.A.2:

4. Write the following number in expanded form: 12,497

10000 + 2000 + 400 + 90 + 7

5. Write the following number in expanded form: 64,025

60000 + 4000 + 0 + 20 + 5

6. Write the following number in standard form: (4 x 100,000) + (9 x 1,000) + (6 x 100) + (7 x 10) + (5 x 1)

49,675

Analyzing Student Work from Diagnostic Questions

Part C: 4.NF.C.6:

7. What is the decimal form of the fraction 3/10?

.310

8. What is the decimal form of the fraction 8/100?

.8100

9. What is the fraction form of 0.90?

$\frac{.90}{100}$

Analyzing Student Work from Diagnostic Questions

Part D: 4.MD.A.1:

10. Complete the following table.

1 kilometer	=	1000 meters
1 meter	=	100 centimeters
1 kilogram	=	100 grams
1 liter	=	100 milliliters

11. Complete the following table.

2 kilometers	=	2000 meters
3 meters	=	300 centimeters

12. Complete the following table.

2,000 grams	=	20 kilograms
5,000 milliliters	=	50 liters

Understand the Standard & How it Connects to Upcoming Material

Use guidance on p. 5 for 4.NBT.A.1:

1. What component of rigor (conceptual, procedural, application) is addressed by this standard?

2. How does that knowledge/skill connect to this 5th grade content in Module 1 - Topic A - Lesson 2:

NYS COMMON CORE MATHEMATICS CURRICULUM | Lesson 2 Exit Ticket | 5•1

1. Solve.

   a. $32.1 \times 10 =$ _____ b. $3632.1 \div 10 =$ _____

Take Action

1. Identify which prior grade lessons should be used, when, and with which students.

2. Decide whether the gaps displayed by students should be addressed prior to starting this Module or if can be filled alongside grade level content.

Module 1: Place Value and Decimal Fractions

Lesson	Course Level Content Standards	Standards from other Grades	Action	Notes/Rationale for Action
1.1	5.NBT.A.1, 5.NBT.A.2*		O	• This Lesson includes explaining and applying patterns in the values of the digits in the product or the quotient, when a decimal is multiplied or divided by a power of 10 which will lead to mastery of 5.NBT.A.2.
1.2	5.NBT.A.1, 5.NBT.A.2*		O	• This Lesson includes explaining and applying patterns in the number of zeros of the product when multiplying a number by powers of 10 and explaining and applying patterns in the values of the digits in the product or the quotient, when a decimal is multiplied or divided by a power of 10 which will lead to mastery of 5.NBT.A.2.
1.3	5.NBT.A.1, 5.NBT.A.2		O	
1.4	5.NBT.A.1, 5.NBT.A.2, 5.MD.A.1*		O	• This Lesson includes converting among different-sized standard measurement units within a given measurement system which will lead to mastery of 5.MD.A.1.
1.5	5.NBT.A.3a		O	
1.6	5.NBT.A.3a, 5.NBT.A.3b		O	
1.7	5.NBT.A.4		O	
1.8	5.NBT.A.4		O	

R = optional for remediation; E = optional for enrichment; O = on grade level

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LEAP 2025: Focus

LEAP 2025 assessments focus where Louisiana Student Standards for Mathematics focus:

Conceptual Understanding	Procedural Skill and Fluency	Application
• *Understand, recognize, interpret* • How operations/skills are related • How algorithms are developed • How one skill builds a foundation for the next	• *Fluently, find, solve* • Accuracy, efficiency, flexibility • Built from foundation in conceptual understanding • Adds to foundation in application and solving more complex problems	• *Word problems, real-world, context* • Problem-solving in meaningful, relevant context • Expression in mathematical reasoning • Modeling symbolically and by design • Interpreting what the symbolic modeling represents in the real world

Assessment Comparison

	EOC: 2005 – Spring 2017	LEAP 2025: starting Fall 2017
Comparability	Limited to within LA	Expands to compare with other states
Consistency	Separate EOC system from LEAP • 4 achievement levels • Reporting by discrete domains	One seamless system – LEAP 2025 • 5 achievement levels • Similar design to grades 3-8 • Reporting to support college/career ready claim
Components	• 46 multiple-choice questions • 1 constructed-response task with limited connection to mathematical practices	• 32 tasks: multiple select, fill in the blank, technology enhanced • 6-7 constructed-response tasks designed to assess reasoning and modeling mathematical practices with specific content
College/Career Ready Claim	None	Built into design with evidence statements and reporting categories

Assessment Comparison

Category	EOC (2016 – 2017)	LEAP 2025 (2017 – 2018)
Test Design	• Session 1: MC, No Calculator • Session 2: CR, Calculator • Session 3: MC, Calculator	• Session 1a – No Calculator/Session 1b – Calculator • Session 2 – Calculator • Session 3 – Calculator
Materials	• Scientific Calculator • Geometry Reference Sheet • Online Tools Training (OTT) • Rulers/protractor • Sample Items documents	• Calculator and graphing capability • High School Mathematics Reference Sheet available for Algebra I & Geometry • Online Tools Training (OTT) – to be updated • Practice Tests for Algebra I & Geometry
Timing	Untimed, suggested times	Timed Session 1a/1b: 25 minutes/55 minutes Session 2: 80 minutes Session 3: 80 minutes

Test Design

Test Session	Type I (points)	Type II (points)	Type III (points)	Total (points)	Number of Embedded Field-Test Tasks
Session 1a: No Calculator	9	0	0	9	1
Session 1b: Calculator	7	3	3	13	1
Session 2: Calculator	13	4	6	23	1
Session 3: Calculator	13	4	6	23	3
TOTAL	42	11	15	68	6

- 38-39 tasks for 68 points
- 6 total embedded field-test tasks (5 Type I, 1 Type II or III)
- field-test tasks do **not** count towards a student's final score on the test
- Major Content/Additional & Supporting Content ~ 65/35

Implications: Action Steps

- Assess with a variety of item types
- Include/increase opportunities for written expression of reasoning and modeling
- Incorporate *High School Mathematics Reference Sheet*
- Plan time for students to explore OTT on multiple occasions
- Consult practice test guide for best practices when administering and reviewing practice tests
- Teaching the standards is the best "test prep."
- Access LEAP 360 for support in assessing mastery of standards throughout the year.
- The biggest factor for success is time spent engaged with on-grade-level work. Any study of previous grade-level content should be done so in the context of the new learning, leveraging the coherence in the standards.

Practice Resources: Practice Tests!

- Available Fall 2017
- Mirrors operational test
  - Test design – sessions, points per session, task types, ancillaries
  - Variety in item types
  - Secure testing platform – requires test tickets

- The Teacher Access Link for high school LEAP 2025 assessments is now available. Teachers can view the practice tests by accessing the Teacher Access link in Google Chrome and entering a username and password for an assessment. The high school practice

Practice Test	Username	Login
English I	ENG1	teach2025
English II	ENG2	teach2025
Algebra	ALG1	teach2025
Geometry	GEO	teach2025
US History	USHIST	teach2025

Assessment Guidance Resources

MATH ASSESSMENT STRUCTURE

File	Download
LEAP 2025 Assessment Guide for Grade 3 Math	Download
LEAP 2025 Assessment Guide for Grade 4 Math	Download
LEAP 2025 Assessment Guide for Grade 5 Math	Download
LEAP 2025 Assessment Guide for Grade 6 Math	Download
LEAP 2025 Assessment Guide for Grade 7 Math	Download
LEAP 2025 Assessment Guide for Grade 8 Math	Download
LEAP 2025 Assessment Guide for Algebra I	Download
LEAP 2025 Assessment Guide for Geometry	Download

MATH ASSESSMENT RESOURCES

File	Download
LEAP 2025 Equation Builder Guide for Grades 3-5	Download
LEAP 2025 Equation Builder Guide for Grades 6-8	Download
LEAP 2025 Equation Builder Guide for High School	Download
LEAP 2025 Spanish Equation Builder Guide for Grades 3-5	Download
LEAP 2025 Spanish Equation Builder Guide for Grades 6-8	Download
LEAP 2025 Spanish Equation Builder Guide for High School	Download
LEAP 2025 Grades 5-HS Mathematics Reference Sheets	Download

All Assessment Guides were updated 8/22/2017

- Grade 3
- Grade 4
- Grade 5
- Grade 6
- Grade 7
- Grade 8
- Algebra I
- Geometry

Equation Builder Guides

- 3-5
- 6-8
- High School
- Sp. 3-5
- Sp. 6-8
- Sp. High School

Mathematics Reference Sheets 5-High School

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Reflections

Based on today's training,

- What are the some potential dangers of a "traditional" mindset when it comes to remediation?
- What are the key actions needed to support students who may not be prepared to engage in the grade-level content of all Eureka lessons?

Closing

Math Tools on the Math Planning Page

Understand the Standards

- K-12 Louisiana Student Standards for Math
- Teacher Companion Documents
- Focus Documents
- Rigor Documents

Implement the Eureka Curriculum

- Louisiana Eureka Guides *(updated)*

Help Students who Struggle

- Remediation Guides
- Eureka Remediation Tools *(new)*

Assess the Standards

- LEAP 360 (diagnostics, interims, EAGLE)
- Summative Assessment Guidance

Year-long Planning

- Sample Year Plans
- Sample Middle School Accelerated Plans

Contact LouisianaStandards@la.gov with questions.