Accelerating Math Learning

June 29, 2023
11 a.m.

Objectives

By the end of this session, you should be able to

- define the approach of learning acceleration in math;
- identify high-quality materials designed to accelerate math learning;
- review a sample acceleration plan; and
- reflect on necessary structures to support learning acceleration.

Louisiana's Math Pillars

school structures prioritize **all students'** successful engagement in **high-quality, grade-level core math instruction** alongside peers

timely, proactive interventions connecting prerequisite learning to upcoming and current grade-level work

ongoing **professional learning and proactive planning** are essential for effective teaching and accelerating

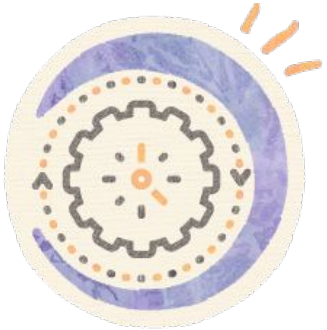
families, caregivers, and communities play an essential role at all ages and stages

The Louisiana Math Comprehensive Plan outlines state and system actions to support math success for all students.

Accelerating Math Learning

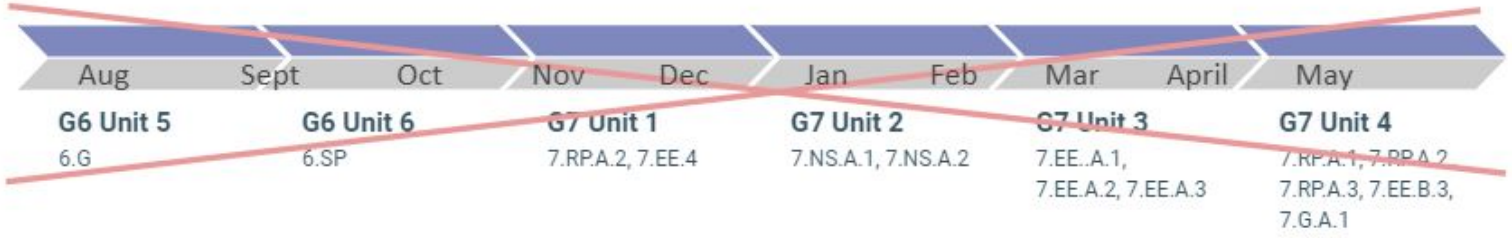
Teachers have access to **high-impact structures and systems** to support their growth.

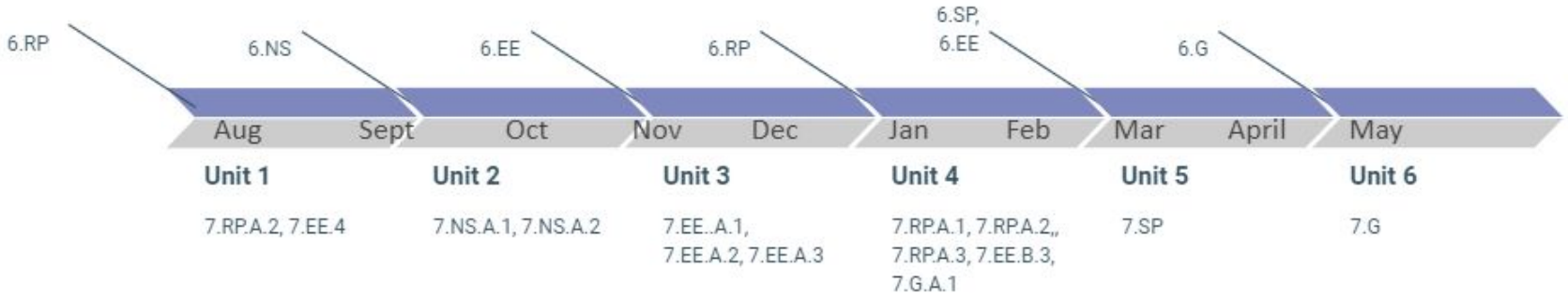
Teachers have access to **high-quality, aligned resources**.



Teachers are prepared to lead **highly-effective instruction in positive, inclusive environments** every day.

What is Acceleration?





Source: [Hawaii Office of Curriculum and Instructional Design]

Accelerating Math Learning

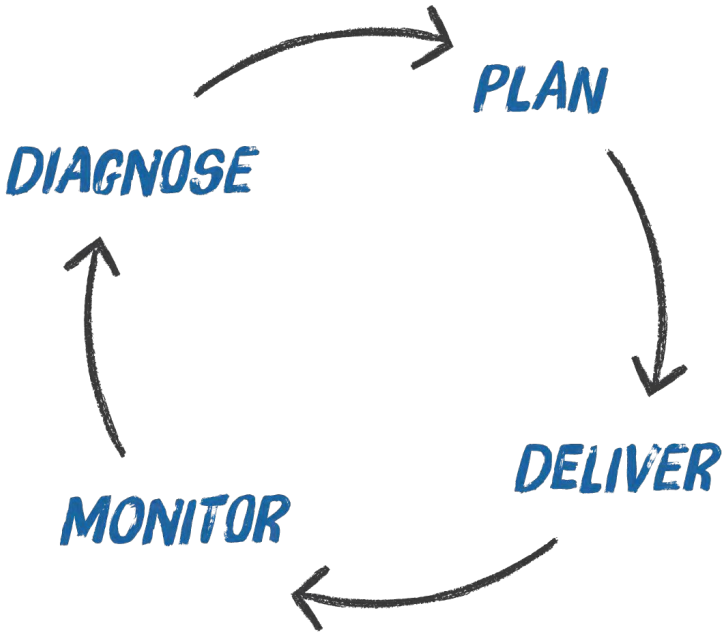
more of this…	less of this…
• emphasis on *forward movement*; unfinished math learning is systematically addressed just in time for new concepts • ensuring all students, including students with disabilities and English Learners, have daily access to high-quality, grade-level learning alongside peers • math instruction across settings (e.g., tutoring, extended learning time) is connected to core instruction and of the same standard of quality, prioritizing individualized supports that ensure readiness to engage in grade-level work	• emphasis on *backward movement*, reteaching every "missing" skill or concept in isolation from grade-level work • structuring extended learning time and interventions so that students miss sacred core ELA, math, science, or social studies instruction • instructional and intervention time is passive and isolated from core (e.g., focused on worksheets or computer-based fluency drills), and/or students are engaging with work that is better suited for earlier grades

Zearn Impact Study

Key Findings

- **Elementary and middle school students who consistently used Zearn Math scored significantly higher on 2022 LEAP than matched peers** who did not use Zearn Math. This finding was consistent across Black and/or Latino students, economically disadvantaged students, multilingual learners, students in special education, and chronically absent students.
- **Impact was greatest for Louisiana students not yet meeting Mastery:** these students gained 1.5 to 2.0 years of math learning in one academic year when they consistently used Zearn Math.
- **70% of students at the lowest level of math achievement who consistently used Zearn Math improved their achievement level** on the 2022 LEAP, compared to just 45% of students at the same starting level who did not use Zearn.

Acceleration Cycle



Diagnose students' unfinished learning of the prerequisite content knowledge and skills.

Plan for timing and content for acceleration support for all students.

Deliver just-in-time, curriculum-aligned support.

Monitor progress to adjust supports based on student performance.

Accelerate Math Resources

Accelerate Math resources include

- Acceleration Tools, which function as screeners to diagnose unfinished learning ahead of a topic of instruction;
- Google Slides for teachers and/or tutors to plan for and deliver individualized supports; and
- Tutoring Exit Tickets to monitor student understanding.

ACCELERATE

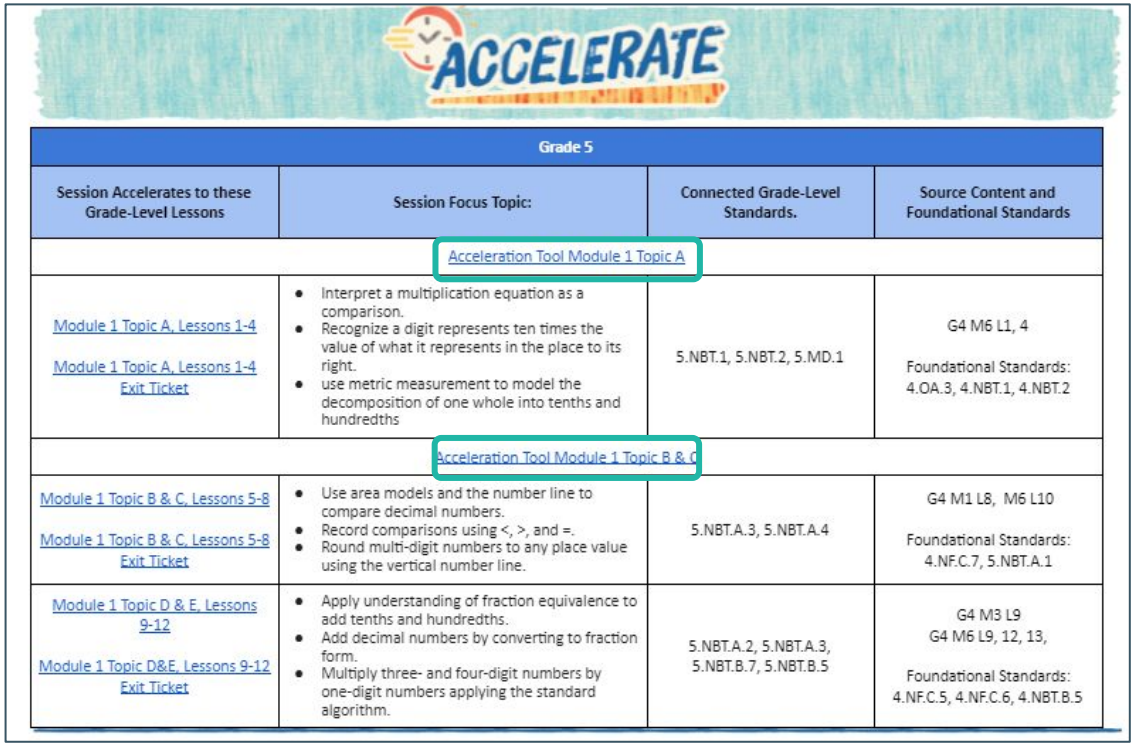
Math Resources

The **Accelerate Math** resources are built as proactive support to upcoming classroom content in order to ensure students' readiness for grade level mathematics. Math tutoring resources are designed to provide support on the most essential prerequisite knowledge and skills to support success in next week's upcoming lessons. Materials for each grade-level include Acceleration Tools, correlations to in-class lessons, links to Google slide presentations for each tutoring session, links to virtual manipulatives, and Desmos activities when available. Sessions were designed for one hour of virtual instruction for two sessions per week, but teachers should adjust to the mode of delivery, time, technology, and resources available. Elements of the Google slide presentations can be delivered as is, written on paper and shown to students through a document camera, imported into other presentation software or platforms, or used with students physically present.

Resources will be updated throughout the 2020-2021 school year.

Accelerate Math Resources										
Pre-K Coming Soon	Grade K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6 Eureka Math Grade 6 Illustrative Math	Grade 7 Eureka Math Grade 7 Illustrative Math	Grade 8 Eureka Math Grade 8 Illustrative Math	Algebra I Geometry

Accelerate Math



Grade 5			
Session Accelerates to these Grade-Level Lessons	**Session Focus Topic:**	**Connected Grade-Level Standards.**	**Source Content and Foundational Standards**
Acceleration Tool Module 1 Topic A			
Module 1 Topic A, Lessons 1-4 Module 1 Topic A, Lessons 1-4 Exit Ticket	• Interpret a multiplication equation as a comparison. • Recognize a digit represents ten times the value of what it represents in the place to its right. • use metric measurement to model the decomposition of one whole into tenths and hundredths	5.NBT.1, 5.NBT.2, 5.MD.1	G4 M6 L1, 4 Foundational Standards: 4.OA.3, 4.NBT.1, 4.NBT.2
Acceleration Tool Module 1 Topic B & C			
Module 1 Topic B & C, Lessons 5-8 Module 1 Topic B & C, Lessons 5-8 Exit Ticket	• Use area models and the number line to compare decimal numbers. • Record comparisons using <, >, and =. • Round multi-digit numbers to any place value using the vertical number line.	5.NBT.A.3, 5.NBT.A.4	G4 M1 L8, M6 L10 Foundational Standards: 4.NF.C.7, 5.NBT.A.1
Module 1 Topic D & E, Lessons 9-12 Module 1 Topic D&E, Lessons 9-12 Exit Ticket	• Apply understanding of fraction equivalence to add tenths and hundredths. • Add decimal numbers by converting to fraction form. • Multiply three- and four-digit numbers by one-digit numbers applying the standard algorithm.	5.NBT.A.2, 5.NBT.A.3, 5.NBT.B.7, 5.NBT.B.5	G4 M3 L9 G4 M6 L9, 12, 13, Foundational Standards: 4.NF.C.5, 4.NF.C.6, 4.NBT.B.5

Acceleration Tools

Acceleration Guidance: Grade 5
Eureka Module 1, Topics B and C

Part A: 4.NBT.A.2:

1. Write the following number in expanded form: 21,354

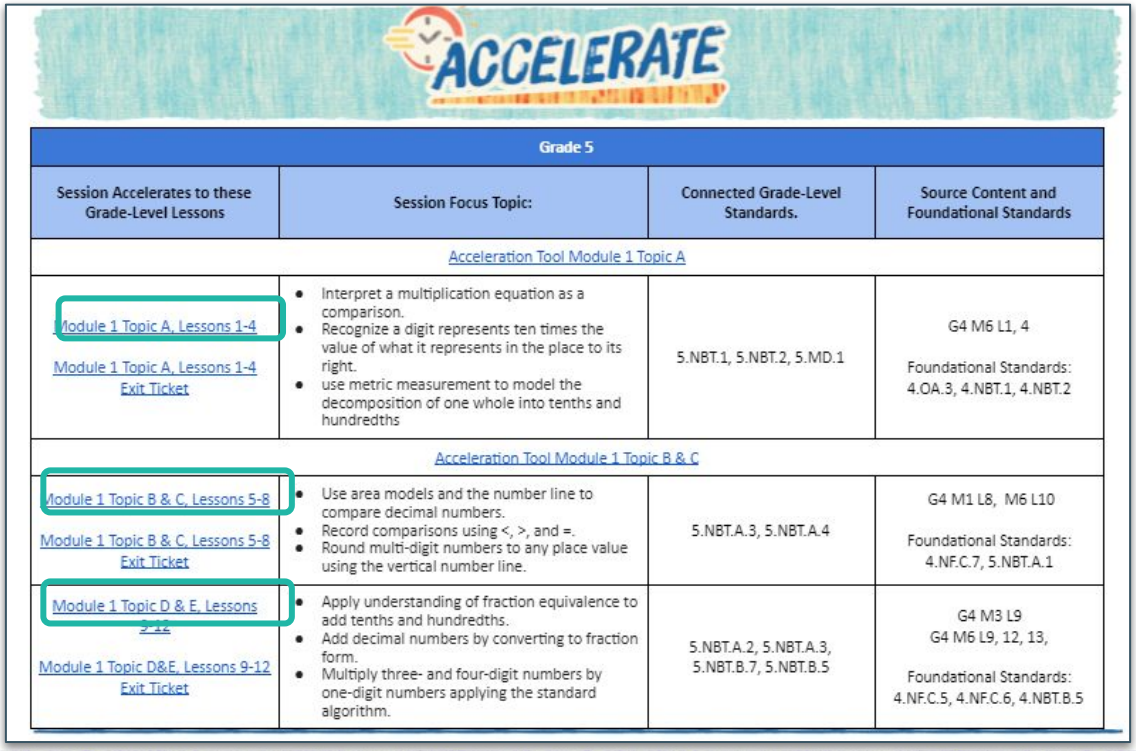
2. Write the following number in expanded form: 40,769

3. Write the following number in standard form:
   (2 x 100,000) + (6 x 10,000) + (5 x 100) + (3 x 10) + (9 x 1)

Part B: 4.NBT.A.3:

4. Round 67,942 to the nearest ten thousands place.

Tutoring Slide Presentations



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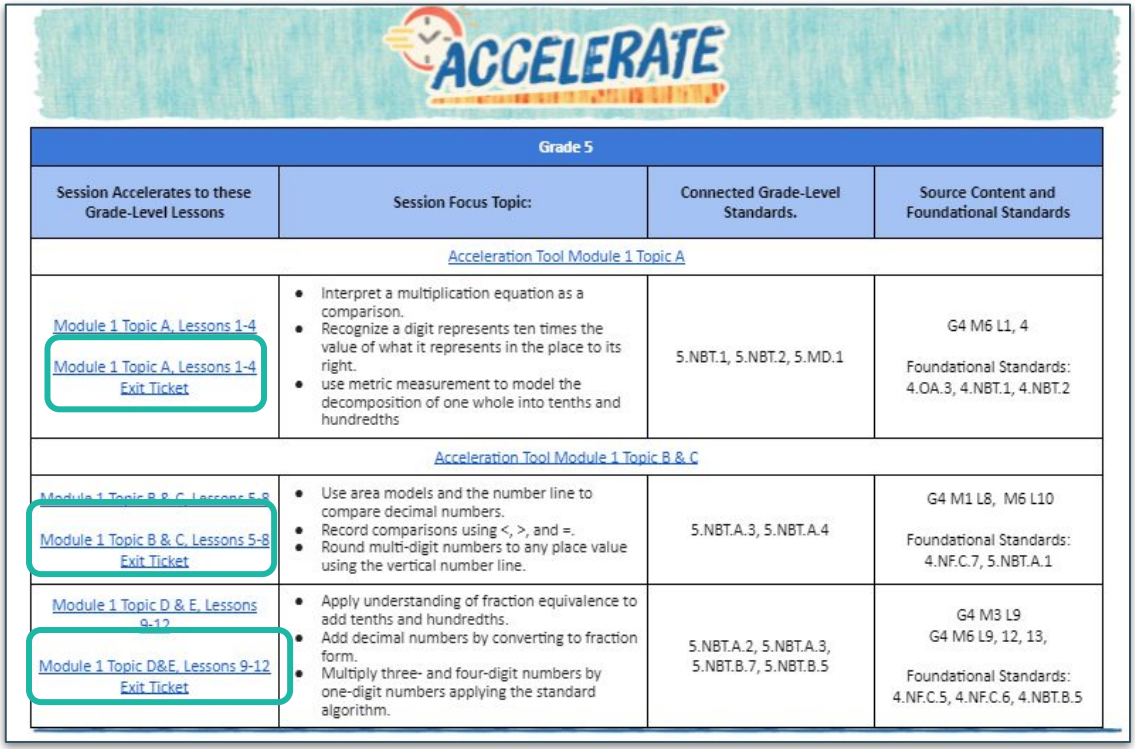
Accelerate to:
Grade 5 Module 1
Lessons 5-8

Exit Tickets



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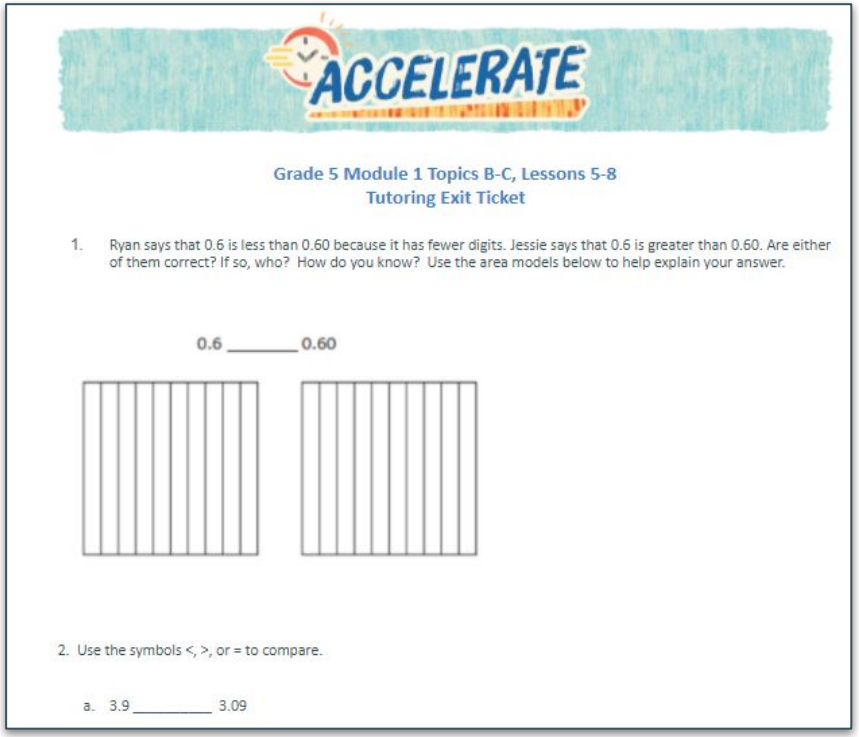
Accelerate Math Updates: Tutoring Exit Tickets



ACCELERATE

Grade 5 Module 1 Topics B-C, Lessons 5-8
Tutoring Exit Ticket

1. Ryan says that 0.6 is less than 0.60 because it has fewer digits. Jessie says that 0.6 is greater than 0.60. Are either of them correct? If so, who? How do you know? Use the area models below to help explain your answer.

0.6 _____ 0.60

2. Use the symbols <, >, or = to compare.

a. 3.9 _____ 3.09

High School Guidance

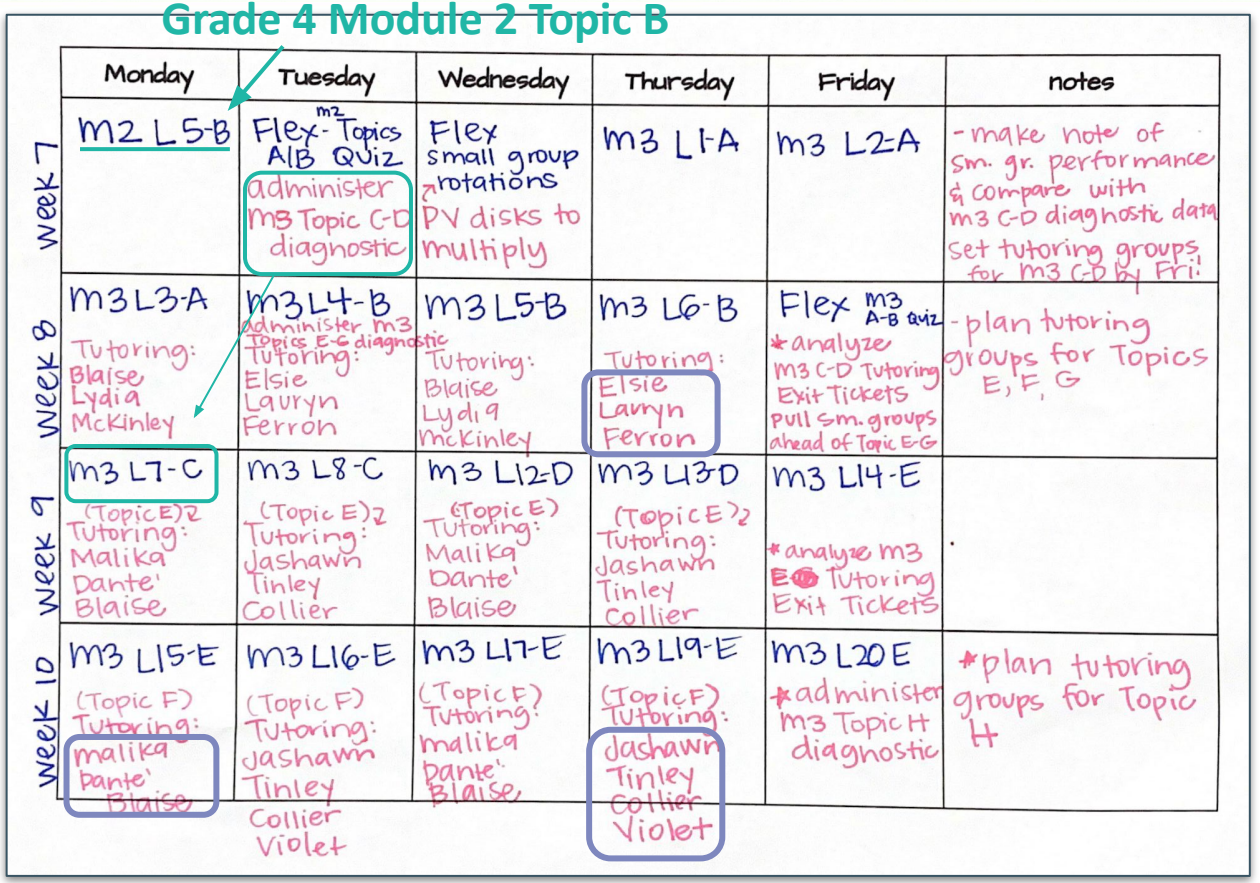
Accelerating Learning in High School provides guidance specific for Algebra I and Geometry teachers by

- connecting to the most widely implemented curricula; and
- highlighting curriculum embedded accelerating supports.

Sample Planning

	Monday	Tuesday	Wednesday	Thursday	Friday	notes
Week 7	m2 L5-B	Flex- m2 Topics A|B Quiz administer m3 Topic C-D diagnostic	Flex small group rotations PV disks to multiply	m3 L1-A	m3 L2-A	-make note of sm. gr. performance & compare with m3 C-D diagnostic data set tutoring groups for m3 C-D by Fri.
Week 8	m3 L3-A Tutoring: Blaise Lydia McKinley	m3 L4-B administer m3 Topics E-G diagnostic Tutoring: Elsie Lauryn Ferron	m3 L5-B Tutoring: Blaise Lydia McKinley	m3 L6-B Tutoring: Elsie Larryn Ferron	Flex m3 A-B Quiz *analyze m3 C-D Tutoring Exit Tickets pull sm. groups ahead of Topic E-G	-plan tutoring groups for Topics E, F, G
Week 9	m3 L7-C (Topic E) x2 Tutoring: Malika Dante' Blaise	m3 L8-C (Topic E) x2 Tutoring: Jashawn Tinley Collier	m3 L12-D (Topic E) Tutoring: Malika Dante' Blaise	m3 L13-D (Topic E) x2 Tutoring: Jashawn Tinley Collier	m3 L14-E *analyze m3 E-G Tutoring Exit Tickets	.
Week 10	m3 L15-E (Topic F) Tutoring: malika Dante' Blaise	m3 L16-E (Topic F) Tutoring: Jashawn Tinley Collier Violet	m3 L17-E (Topic F) Tutoring: malika Dante' Blaise	m3 L19-E (Topic F) Tutoring: Jashawn Tinley Collier Violet	m3 L20 E *administer m3 Topic H diagnostic	*plan tutoring groups for Topic H

Grade 4 Module 2 Topic B



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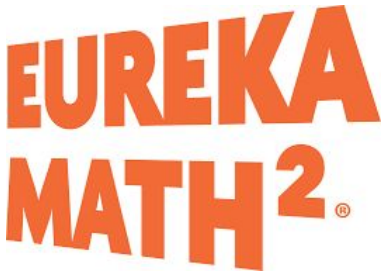
Tools for Acceleration

- Zearn as supplemental to another core
- Accelerate Math
- Curriculum embedded acceleration supports



Acceleration in Mathematics within the context of Eureka Math^2 Equip

Diagnose:

To begin, use the Pre-Module Assessment to diagnose students' proficiency with essential foundational knowledge. Then use the data from that assessment to do the following:

- Identify possible unfinished student learning.
- Select supporting activities from this guide that best meet the needs of your students.

Plan:

Plan when you might provide student support to accelerate learning by reviewing the Pre-Module Assessment overview which includes at-a-glance information about the material associated with each assessment item and when the foundation content is needed in the current module.

Map out when the supporting activities will be provided to students, individually, in small groups or with the entire class.

Deliver:

Deliver the supporting activities. Depending on students' needs, select any combination of the supporting activities to teach. Supporting activities are designed to be flexible. Most can be used with a single student, a small group, or even a whole class.

Monitor:

Monitor student progress by analyzing their performance on the Exit ticket from the "Needed By" module lesson, topic quizzes, or End of Module assessments.

Useful Resources:

Eureka Math Squared Equip User Guide

Implementation: Key Look Fors

Pillar 1: Intentional Structures
There are structures within a school that must exist to support the implementation of Accelerate. School leaders should have these practices reflected in their master schedule.

Pillar 2: High-Quality Materials
High-quality materials are the bedrock of quality tutoring. School leaders should ensure that teachers and students have access to and use resources that complement and are directly connected to the high-quality core curriculum to prepare students for new learning.

Pillar 3: Effective Instruction
Ongoing formative assessment should drive the instruction for individual students or small groups with common needs. Effective instructional practices delivered by effective educators will substantially accelerate learning in both math and reading for students with unfinished learning.

Reflection

1. What **structures** are in place at your school to support the use of acceleration in math?
2. Which **high-quality materials** will be used in your school's acceleration program?
3. How do you plan to promote and support **effective instruction**?

Questions?

Upcoming Webinars

In support of the Math Refresh, the Department is hosting a Summer Webinar Series.

Webinars will be held on the following dates from 11 a.m. - 12 p.m.

- Thursday, July 20 - Fluency Resources

Please contact STEM@la.gov with questions.

Contact Information

Please contact STEM@la.gov with any questions or to request an individualized call to support your implementation planning efforts.