ZEARN

Introducing Zearn Summer 2024 Math Intensive Series

Zearn's Summer 2024 Intensive Series are designed based on learnings of the billions of math problems completed on our math platform: where students struggle and the specific foundational support that kids need to access grade-level math content.

During the academic year, we identify and recommend these foundational lessons to teachers so they can be used for deeper interventions. Our Summer Series pulls forward these recommendations into coherent summer math experiences. Each Summer 2024 Intensive Series offers coherent, focused four-to-six-week sequences that build the strong foundations all rising 1st through 9th graders need to move forward during the 2024-2025 academic year.

Comprehensive materials for 4-to-6-week programs

Each Series consists of top-rated materials that can be used flexibly across summer programs:

- ✓ **Daily digital math lessons** offer a consistent structure of learning activities, designed to accelerate math learning by integrating unfinished learning into the context of new learning. Students explore new concepts with real on-screen teachers, visualization of every math concept, interactive problem solving, and guided paper-and-pencil Student Notes.

- ✓ **Materials for hands-on problem solving** offer teachers and tutors daily application problems they can use to facilitate lively math discussions where students explore different ways to solve problems, unlocking creativity and joy with math.

- ✓ **Real-time reports on student learning** provide visibility into student learning and where students need additional support to move forward in their learning.

Focused on the big ideas of math

Each Summer 2024 Math Intensive Series deeply explores the essential math content that will help rising 1st–9th graders unlock grade-level math learning this fall. In younger grades, students explore one big idea, like addition and subtraction. In older grades, students tackle longer sequences covering a few big ideas, building a strong foundation in critical capstone content that they will need for success in later grades.

Recommended usage in each 4-to-6-week program:

- ★ **Rising 1st through 3rd graders** should complete 1 lesson each day (~30 minutes)

- ★ **Rising 4th through 9th graders** should complete 2 lessons each day (~60 minutes)

Explore the content of Zearn's Summer 2024 Math Intensive Series on the following pages.

Summer Math Intensive Series: Rising 1st Graders

For rising 1st graders, the Kindergarten Summer Intensive Series focuses on the essentials of kindergarten content: counting! The Summer Intensive Series can be tackled digitally and is intended to build the number sense that rising 1st graders need.

	Content for Rising 1st Graders: Kindergarten digital activities	
K Digital Activities	Kindergarten is all about learning to count with deep understanding.	Students should start on the first **Kindergarten digital activity in their account** and complete each consecutive activity throughout the summer. Each Kindergarten activity takes ~5-10 minutes and will enable students to practice counting, addition, embedded numbers, and decomposing and composing numbers up to 20 using interactive five frames, ten frames, number bonds, and more.

Summer Math Intensive Series: Rising 2nd Graders

For rising 2nd graders, the Grade 1 Summer Intensive Series focuses on counting, composing, and decomposing with large enough numbers to prepare for 2nd grade. The Grade 1 Summer Intensive Series is intended to build a strong foundation of flexible strategies for all students to fall back on as they engage with Grade 2 content and beyond.

	Content for Rising 2nd Graders: 23 Lessons		
Mission	**Mission Title**	**Lessons**	**Topics**
G1M4	**Add and Subtract Bigger Numbers** This Mission builds on the foundations of counting on, decomposing, and counting strategies that were established in Mission 1 and Mission 2. This gives students the opportunity to work with numbers up to 40. Students will learn many new strategies to identify tens and ones and will compare, add, and subtract numbers up to 40. Reinforce this new content by using the provided word problem each day.	23	Topic A: Tens and Ones Topic B: Comparison of Pairs of Two-Digit Numbers Topic C: Addition and Subtraction of Tens Topic D: Addition of Tens or Ones to a Two-Digit Number Topic E: Varied Problem Types Within 20 Topic F: Addition of Tens and Ones to a Two-Digit Number

Summer Math Intensive Series: Rising 3rd Graders

For rising 3rd graders, the Grade 2 Summer Intensive Series focuses on the capstone content of K–2: a deep understanding of the base ten system and flexibly being able to add and subtract. This is content that 3rd-grade standards assume students can access.

Mission	Content for Rising 3nd Graders: 20 Lessons		
	Mission Title	Lessons	Topics
G2M5	**Add and Subtract Big Numbers** Students are now well on their way to mastering flexible addition and subtraction. This Mission builds on those skills, now using numbers up to 1,000 and increasing the focus on efficiency and checking their work.	20	Topic A: Strategies for Adding and Subtracting Within 1,000 Topic B: Strategies for Composing Tens and Hundreds Within 1,000 Topic C: Strategies for Decomposing Tens and Hundreds Within 1,000 Topic D: Student Explanations for Choice of Solution Methods

Summer Math Intensive Series: Rising 4th Graders

For rising 4th graders, the Grade 3 Summer Intensive Series focuses on multiplication and division, which is key to their success in later grades.

Mission	Mission Title	Lessons	Topics
	Content for Rising 4th Graders: 37 Lessons		
G3M3	**Multiply and Divide Tricky Numbers** This Mission extends multiplication and division to all factors between 0 and 10. Students work deeply with the commutative, distributive, and associative properties and have problem-solving opportunities at the close of each topic.	21	Topic A: The Properties of Multiplication and Division Topic B: Multiplication and Division Using Units of 6 and 7 Topic C: Multiplication and Division Using Units up to 8 Topic D: Multiplication and Division Using Units of 9 Topic E: Analysis of Patterns and Problem Solving Including Units of 0 and 1 Topic F: Multiplication of Single-Digit Factors and Multiples of 10
G3M4	**Find the Area** In this Mission, students explore area as an attribute of two-dimensional figures and relate it to their prior understandings of multiplication.	16	Topic A: Foundations for Understanding Area Topic B: Concepts of Area Measurement Topic C: Arithmetic Properties Using Area Models Topic D: Applications of Area Using Side Lengths of Figures

Summer Math Intensive Series: Rising 5th Graders

For rising 5th graders, the Grade 4 Summer Intensive Series focuses on fractions and decimals. Students evaluate equivalence and learn to extend that understanding to decimal operations. The Summer Intensive Series is intended to ensure students have a solid grasp of these ideas to close out 4th grade successfully.

Mission	Mission Title	Lessons	Topics
	Content for Rising 5th Graders: 53 Lessons		
G4M5	**Equivalent Fractions** This Mission teaches students how to manipulate fractions. Students compare fractions, evaluate equivalence, and learn that the same methods they used for whole number operations can be used to add, subtract, and multiply fractions.	38	Topic A: Decomposition and Fraction Equivalence Topic B: Fraction Equivalence Using Multiplication and Division Topic C: Fraction Comparison Topic D: Fraction Addition and Subtraction Topic E: Extending Fraction Equivalence to Fractions Greater Than 1 Topic F: Addition and Subtraction of Fractions by Decomposition Topic G: Repeated Addition of Fractions as Multiplication Topic H: Exploring a Fraction Pattern
G4M6	**Decimal Fractions** Students learn a new and special notation for fractions in this Mission: decimals! They extend their understanding of the base ten system by first exploring equivalence between fractions and decimals. This understanding extends to comparing decimals and adding money.	15	Topic A: Exploration of Tenths Topic B: Tenths and Hundredths Topic C: Decimal Comparison Topic D: Addition with Tenths and Hundredths Topic E: Money Amounts as Decimal Numbers

Summer Math Intensive Series: Rising 6th Graders

For rising 6th graders, the Grade 5 Summer Intensive Series focuses on essential fractions and decimal operations work. The Summer Intensive Series is intended to ensure students are prepared for 6th-grade math as an extension of elementary school work.

Mission	Content for Rising 6th Graders: 48 Lessons		
	Mission Title	**Lessons**	**Topics**
G5M3	**Add and Subtract Fractions** In this Mission, students will develop flexibility with addition and subtraction of fractions so they can mentally or numerically solve, reason, and estimate their calculations. The Mission begins with concrete and pictorial work (using area models and number lines) and moves to numeric work with word problems.	16	Topic A: Equivalent Fractions Topic B: Making Like Units Pictorially Topic C: Making Like Units Numerically Topic D: Further Applications
G5M4	**Multiply and Divide Fractions and Decimals** Students tackled equivalency in adding and subtracting fractions in Mission 3; now they're ready to focus on multiplying and dividing fractions. Their understanding will be deeply rooted in multiple concrete examples and pictures before they generalize to more abstract methods.	32	Topic A: Line Plots of Fraction Measurements Topic B: Fractions as Division Topic C: Multiplication of a Whole Number by a Fraction Topic D: Fraction Expressions and Word Problems Topic E: Multiplication of a Fraction by a Fraction Topic F: Multiplication with Fractions and Decimals as Scaling and Word Problems Topic G: Division of Fractions and Decimal Fractions Topic H: Interpretation of Numerical Expressions

Summer Math Intensive Series: Rising 7th Graders

For rising 7th graders, the Grade 6 Summer Intensive Series begins by developing understanding of ratios and rates so that students can represent and think about them in multiple, flexible ways. This is important because these concepts will be the foundations of proportional relationships and linear equations. The Summer Intensive Series also includes additional Missions that focus on bridging arithmetic from 3rd to 5th grade to 7th-grade arithmetic that requires students to deeply understand and have a higher fluency with operations.

Mission	Content for Rising 7th Graders: 44 Lessons		
	Mission Title	**Lessons**	**Topics**
G6M3	**Unit Rates and Percentages** In this Mission, students extend their developing understanding of ratios to dig deeper into ratio relationships and learn about rates and unit rates. Students are introduced to the idea of a percentage, which allows them to solve a variety of real-world problems.	14	Topic A: Using Unit Rate to Solve Problems Topic B: Unit Conversion Topic C: Rates Topic D: Percentages Topic E: Let's Put It to Work
G6M4	**Dividing Fractions** In this Mission, students culminate their study of fractions as they learn to divide a fraction by a fraction, using concrete examples and real-world contexts to help them make sense of the mathematics	16	Topic A: Making Sense of Division Topic B: Meanings of Fraction Division Topic C: Algorithm for Fraction Division Topic D: Fractions in Lengths, Areas, and Volumes Topic E: Let's Put It to Work
G6M5	**Arithmetic in Base Ten** In this Mission, students use various models and representations to add, subtract, multiply, and divide decimals and formalize their work with the appropriate standard algorithms.	14	Topic A: Warming up to Decimals Topic B: Adding and Subtracting Decimals Topic C: Multiplying Decimals Topic D: Dividing Decimals Topic E: Let's Put It to Work

Summer Math Intensive Series: Rising 8th Graders

For rising 8th graders, the Summer Intensive Series focuses on three big ideas introduced in Grade 7: proportional relationships, arithmetic with signed numbers, and solving multi-step equations. Proportional relationships are revisited and extended in 8th grade to introduce students to the concept of a function, which is arguably the most important concept students will study for the remainder of their mathematical careers. Additionally, students' work with rational number arithmetic and solving multi-step equations is woven throughout 8th grade, requiring students to have a certain degree of fluency with each to allow their working memory to focus on the new learning of Grade 8.

Mission	Content for Rising 8th Graders: 51 Lessons		
	Mission Title	Lessons	Topics
G7M4	**Proportional Relationships and Percentages** In this Mission, students use ratios, scale factors, unit rates, and proportional relationships to solve multi-step, real-world problems that involve fractions and percentages. Students represent amounts and corresponding percent rates with double number line diagrams and tables.	14	Topic A: Proportional Relationships with Fractions Topic B: Percent Increase and Decrease Topic C: Applying Percentages Topic D: Let's Put It to Work
G7M5	**Rational Number Arithmetic** In this Mission, students use tables and number line diagrams to represent sums and differences of signed numbers or changes in quantities represented by signed numbers such as temperature or elevation, becoming more fluent in writing different numerical addition and subtraction equations that express the same relationship.	15	Topic A: Interpreting Negative Numbers Topic B: Adding and Subtracting Rational Numbers Topic C: Multiplying and Dividing Rational Numbers Topic D: Four Operations with Rational Numbers Topic E: Solving Equations Where There are Negative Numbers Topic F: Let's Put It to Work
G7M6	**Expressions, Equations, and Inequalities** In this Mission, Students learn algebraic methods for solving equations. Students solve linear inequalities in one variable and represent their solutions on the number line. They understand and use the terms "less than or equal to" and "greater than or equal to," and the corresponding symbols.	22	Topic A: Representing Situations of the Form $px + q = r$ and $p(x + q) = r$ Topic B: Solving Equations of the Form $px + q = r$ and $p(x + q) = r$ and Problems That Lead to Those Equations Topic C: Inequalities Topic D: Writing Equivalent Expressions

Summer Math Intensive Series: Rising 9th Graders

For rising 9th graders, the Summer Intensive Series focuses on linear functions and linear equations, ensuring students have both the foundational understanding and procedural fluency needed to access the new learning of Algebra I. Algebra I is largely the study of functions that behave similarly. Linear functions serve as the launch point for the course. Students need a deep understanding of linear relationships and functions in addition to being able to manipulate algebraic equations and expressions, making these topics the natural choice for the Grade 8 Summer Intensive Series.

Mission	Content for Rising 9th Graders: 49 Lessons		
	Mission Title	**Lessons**	**Topics**
G8M3	**Linear Relationships** In this Mission, students deepen their understanding of slope and learn to recognize connections among rate of change, slope, and constant of proportionality, as well as between linear and proportional relationships.	13	Topic A: Proportional Relationships Topic B: Representing Linear Relationships Topic C: Finding Slopes Topic D: Linear Equations
G8M4	**Linear Equations and Systems** In this Mission, students write and solve linear equations in one variable. These include equations in which the variable occurs on both sides of the equal sign and equations with no solutions, exactly one solution, and infinitely many solutions.	15	Topic A: Puzzle Problems Topic B: Linear Equations in One Variable Topic C: Systems of Linear Equations Topic D: Linear Equations
G8M5	**Functions and Volume** In this Mission, students are introduced to the concept of a function. They describe functions as increasing or decreasing between specific numerical inputs and consider the inputs of a function to be values of its independent variable and its outputs to be values of its dependent variable.	21	Topic A: Inputs and Outputs Topic B: Representing and Interpreting Functions Topic C: Linear Functions and Rates of Change Topic D: Cylinders and Cones Topic E: Dimensions and Shapes