



## Math Summer Learning Packet

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The Math Summer Prep is for incoming Decatur students or current students who want to bridge or maintain their math skills. At Decatur, students are working two levels above grade level. For example, a student who has completed first grade and starts as a second-grade student at Decatur will study fourth grade math. It provides a variety of printable materials, web based materials, and math skill building games.

## Summer Math Guide Grade 5

### What incoming 5<sup>th</sup> grade math students should know:

- Fraction morphing: common denominators, simplifying, converting between mixed numbers and improper fractions (and vice versa)
- fraction and simple mixed number fluency (adding, subtracting, multiplying/dividing)
- 2-digit by 2-digit adding & subtracting (including decimals in the hundredths)
- 2-digit by 2-digit multiplying (including decimals in the hundredths)
- dividing 3-digit numbers by 2-digit numbers (including decimals in the hundredths)
- graphing points on a coordinate plane
- Converting measurements within a system (IE standard or metric units)
- Classify 2-D figures and find measurements (including surface area of 3-D)
- Measures of central tendency: mean, median, and mode

**Suggested Schedule:** Do what works best for your family. While the printable packet and interactive websites do provide some feedback, having an adult there to further explain will help a lot!

#### Sample 30 min. Schedule:

- 5 min. -- warm up with a game\*
- 5 min. -- watch a video to refine a skill
- 15 min. -- interactive website or packet work
- 5 min. -- use new skills to replay game

#### Sample 15 min. Schedule:

- 5 min – warm up with a game or watch a video to refine a skill\*
  - 10 min – interactive website or packet work
- OR**
- Play a game for 15 minutes\*

*\*If your student does not yet recall multiplication and division facts with fluency (10 – 15 second recall), please have them review their facts daily. The online flashcards at Mathigon have an excellent approach. See the link under Interactive Websites for details.*

#### Resources:

**Videos:** These short videos (~ 5min.) to help students “warm up” to math work.

**Games:** These are games that you can print out, obtain at a store, or access online. The Envision math curriculum has online games which are included here.

**Interactive Websites:** Links to iXL & Kahn Academy as well as Mathigon. Kahn Academy has a wonderful “Get Ready Series” for summer. Links are related to topics for that week. Use what appeals to your student – different websites have different approaches.

**Printable Packet:** Focused practice on the weekly topic to print and complete at home. The Envision math curriculum provides at home activities for families which are included here. Parent help is essential to help students complete the worksheets. **Complete as much as needed to feel confident in the topic.**

**Math Tool Kit:** A set of quick reference sheets students could use in the summer and during the school year.

## Week 1: Fraction morphing and all operations with fractions

| Videos  | Games   | Interactive Websites  | Printable Packet   |
|---|---|---|--|
| <p><a href="#">Prime &amp; composite Prime number song</a></p> <p><a href="#">GCF &amp; LCM</a> (factor tree)</p> <p><a href="#">How to find GCF &amp; LCM</a> (ladder/upside down division method)</p> <p><a href="#">Common denominator</a> (equivalent fractions)</p> <p><a href="#">Simplifying fractions</a> (Brain Pop)</p> <p><a href="#">Simplifying fractions</a></p> <p><a href="#">Change an improper fraction to a mixed number</a></p> <p><a href="#">How to change a mixed number to an improper fraction</a></p> <p><a href="#">Adding and Subtracting fractions</a></p> <p><a href="#">Multiplying Fractions</a></p> <p><a href="#">Dividing Fractions</a> (Keep, change, flip)</p> <p><a href="#">Dividing Fractions</a></p> | <p><a href="#">Fraction Empire</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)</p> <p>Number Run: all operations through 10 (app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a>)</p> <p><a href="#">Multiplication Space Race</a> (ABCYA)</p> <p><a href="#">Factris</a>: teaches about factors and basic numeracy while rearranging rectangular blocks to fill a grid.</p> <p><a href="#">Rush Hour</a>, <a href="#">Chocolate Fix</a>, <a href="#">Dog Crimes</a>, &amp; <a href="#">Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills.</p> <p><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving.<br/><a href="#">Try online here.</a></p> <p><a href="#">Prime Climb</a> is a game for ages 10+ (or 8+ with adult guidance) to explore mathematical structure in multiplication, division, and prime numbers in a fast-paced, dynamic game of strategy and luck. Great for understanding number properties needed for fraction morphing.</p> | <p><a href="#">Multiplication by Heart flashcards</a><br/>(might need to be logged into SPS)</p> <p><b>iXL</b><br/><a href="#">Prime &amp; composite Gr. 6</a><br/><a href="#">Prime or Composite GCF</a><br/><a href="#">LCM</a></p> <p><a href="#">Simplifying Fractions</a><br/><a href="#">Equivalent fractions</a><br/><a href="#">Adding Fractions</a><br/><a href="#">Subtracting Fractions</a><br/><b>Multiplying Fractions:</b><br/><a href="#">Fractions of a number</a><br/><a href="#">Using models</a><br/><a href="#">Multiplying two fractions</a><br/><b>Dividing Fractions:</b><br/><a href="#">Fraction by whole</a><br/><a href="#">Whole by fraction</a><br/><a href="#">Fraction by fraction</a><br/><a href="#">Divide Fractions</a></p> <p><b>Kahn Academy:</b><br/><a href="#">Mixed Numbers and Improper Fractions</a><br/><a href="#">Common Denominators</a></p> <p><a href="#">Factors &amp; Multiples (middle of lesson)</a> (Get Ready for 6<sup>th</sup> Grade)</p> <p><a href="#">Get Ready for 5th grade add &amp; subtract fractions</a><br/><a href="#">Get Ready for 5<sup>th</sup> grade multiply &amp; divide fractions</a><br/><a href="#">Operations with Fractions</a><br/><a href="#">Dividing Fractions by Fractions</a></p> | <p><b>Error! Hyperlink reference not valid.</b></p> <p>There are three packets because the topic is VERY extensive.</p> <p><a href="#">Week 1 Printable Packet A</a></p> <p><a href="#">Week 1 Printable Packet B</a></p> <p><a href="#">Week 1 Printable Packet C</a></p> <p><b>Math Tool Kit</b></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a></p> |

## Week 2: Multi-digit whole numbers and decimal addition & subtraction

| Videos  | Games  | Interactive Websites   | Printable Packet   |
|---|--|--|--|
| <a href="#">Addition with Regrouping</a><br><br><a href="#">Subtracting with regrouping</a><br><br><a href="#">Subtracting with ALL regroupings</a> | <a href="#">Summit</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)<br><br><a href="#">Countdown</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)  | <a href="#">Multiplication by Heart flashcards</a><br><br>iXL<br>Gr. 5<br><a href="#">Add decimals</a><br><a href="#">Subtract Decimals</a><br><a href="#">Add and Subtract Decimals</a>           | Error! Hyperlink reference not valid.<br><br><a href="#">Week 2 Printable Packet</a>                             |
| <a href="#">Adding and Subtracting decimals song</a><br><br><a href="#">Adding and Subtracting Decimals</a>   | Number Run: all operations through 10 ( <i>app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a></i> )   | Gr. 6<br><a href="#">Add and subtract whole numbers</a><br><br><a href="#">Add and subtract decimals</a>   | Math Tool Kit  |
| <a href="#">Addition and Subtraction of decimals</a><br><br><a href="#">Subtracting Decimals</a>  | <a href="#">Rush Hour</a> , <a href="#">Chocolate Fix</a> , <a href="#">Dog Crimes</a> , & <a href="#">Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills.<br><br><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving.<br><a href="#">Try online here.</a> | <a href="#">Kahn Academy: Adding Multi-Digit Numbers</a><br><br><a href="#">Subtracting Multi-Digit Numbers</a><br><br><a href="#">Adding Decimals</a><br><br><a href="#">Subtracting Decimals</a> | <a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a><br><br><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a> |

## Week 3: Multi-digit whole number & decimal multiplication

| Videos   | Games  | Interactive Websites   | Printable Packet   |
|--|--|--|--|
| <a href="#">Turtle Method for Multiplication</a><br><a href="#">Long Multiplication Song</a><br><a href="#">Multiply a decimal by a decimal</a><br><a href="#">Decimal multiplication</a><br><a href="#">Multiplying 2-digit by 1 digit number</a><br><a href="#">3-digit by 1 digit multiplication</a><br><a href="#">Turtle Method for Multiplication</a><br><a href="#">Multiplication Column method</a><br><a href="#">Decimal multiplication</a><br><a href="#">Multiply a decimal by a decimal</a> | <p>Number Run: all operations through 10 (<i>app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a></i>)</p> <p>Blockout (can be played with paper or <a href="#">online</a>)</p> <p><a href="#">Rush Hour</a>, <a href="#">Chocolate Fix</a>, <a href="#">Dog Crimes</a>, &amp; <a href="#">Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills.</p> <p><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving. <a href="#">Try online here.</a></p> | <p><a href="#">Multiplication by Heart flashcards</a></p> <p><b>IXL</b><br/> <a href="#">Multiply a 2-digit number by a 2-digit number</a></p> <p><a href="#">Multiply a decimal by a power of ten</a></p> <p><a href="#">Multiply by 0.1 or 0.01</a></p> <p><a href="#">Multiply two decimals: where does the decimal point go?</a></p> <p><a href="#">Multiply two decimals: products up to hundredths</a></p> <p><a href="#">Multiply two decimals: products up to thousandths</a></p> <p><b>Kahn Academy:</b><br/> <a href="#">Multidigit Multiplication</a><br/> <a href="#">Multiplying Decimals</a></p> | <p>Error! Hyperlink reference not valid.</p> <p><a href="#">Week 3 Printable Packet</a></p>                  |
|  |  |  | Math Tool Kit  |
|  |  |  | <a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a><br><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a> |

## Week 4: Multi-digit whole number & decimal division

| Videos  | Games  | Interactive Websites   | Printable Packet  |
|---|--|--|---|
| <a href="#">Decimal multiplication and division</a><br><br><a href="#">Long Division (DMSB)</a><br><br><a href="#">Long Division with 2-Digit Divisors</a><br><br><a href="#">Long Division with 2-digit divisors (Math Antics – bit longer)</a><br><br><a href="#">Dividing decimals by whole numbers</a><br><br><a href="#">Dividing decimal by a decimal</a> | <p><a href="#">Blackout</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)</p> <p><a href="#">Decimal Rally</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)</p> <p><a href="#">Moving Remainders</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)</p> <p>Number Run: all operations through 10 (<i>app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a></i>)</p> <p><a href="#">Rush Hour</a>, <a href="#">Chocolate Fix</a>, <a href="#">Dog Crimes</a>, &amp; <a href="#">Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills. <a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving. <a href="#">Try online here.</a></p> | <p><a href="#">Multiplication by Heart flashcards</a></p> <p><a href="#">IXL</a><br/>Gr. 5<br/><a href="#">Divide by 2-digit numbers</a></p> <p><a href="#">Dividing 4-digit number by a 2-digit number</a></p> <p><a href="#">Divide by powers of ten</a></p> <p><a href="#">Divide by decimals</a></p> <p>Gr. 6<br/><a href="#">2-digit divisors</a></p> <p><a href="#">3-digit divisors</a></p> <p><a href="#">Divide decimals by whole numbers</a></p> <p><a href="#">Division with decimal quotients</a></p> <p><a href="#">All operations with decimals</a></p> <p><b>Kahn Academy:</b><br/><a href="#">Multidigit Division</a></p> <p><a href="#">Dividing Decimals</a></p> | <p><b>Error! Hyperlink reference not valid.</b></p> <p><a href="#">Week 4 Printable Packet</a></p>                      |
|   |  |  | <p>Math Tool Kit</p>  |
|   |  |  | <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a></p> |

## Week 5: All operations with mixed numbers

| Videos   | Games   | Interactive Websites   | Printable Packet  |
|--|---|--|---|
| <a href="#">Add and Subtract Mixed numbers</a><br><a href="#">Multiplying a whole number by a fraction</a><br><a href="#">Multiplying mixed numbers</a><br><a href="#">Multitplying mixed numbers</a><br><a href="#">Dividing Mixed numbers</a><br><a href="#">Add, Subtract, Multiply, and Divide Mixed Numbers (lengthy)</a> | <p>Number Run: all operations through 10 (<i>app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a></i>)</p> <p><a href="#">Rush Hour</a>, <a href="#">Chocolate Fix</a>, <a href="#">Dog Crimes</a>, &amp; <a href="#">Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills.</p> <p><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving. <a href="#">Try online here.</a></p> | <p><a href="#">Multiplication by Heart flashcards</a> (use SPS login)</p> <p><b>IXL</b><br/>Gr. 5<br/><a href="#">Improper Fractions</a></p> <p><a href="#">Add mixed numbers with unlike denominators</a></p> <p><a href="#">Subtract mixed numbers with unlike denominators</a></p> <p><a href="#">Add and subtract mixed numbers</a></p> <p><a href="#">Multiply with mixed numbers using area models</a></p> <p><a href="#">Multiply a mixed number by a whole number</a></p> <p><a href="#">Multiply a mixed number by a fraction</a></p> <p><a href="#">Multiply two mixed numbers</a></p> <p><a href="#">Multiply mixed numbers and whole numbers</a></p> <p><a href="#">Multiply mixed numbers</a></p> <p><a href="#">Divide fractions and mixed numbers</a></p> <p><a href="#">Divide fractions and mixed numbers using models</a></p> <p><a href="#">Divide fractions and mixed numbers</a> (Gr. 6)</p> <p><b>Kahn Academy</b><br/><a href="#">Add and Subtract mixed Numbers</a></p> <p><a href="#">Multiplying Mixed Numbers</a></p> <p><a href="#">Dividing Mixed Numbers</a></p> | <p><b>Error! Hyperlink reference not valid.</b></p> <p><a href="#">Week 5 Printable Packet</a></p>                      |
|  |   |  | <p><b>Math Tool Kit</b></p>   |
|  |   |  | <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a></p> |

**Week 6: Graphing on a coordinate plane & converting measurements within a system (metric or US Customary)**

| Videos   | Games   | Interactive Websites   | Printable Packets  |
|--|---|--|--|
| <p><a href="#">Introduce Coordinate Plane</a></p> <p><a href="#">Graphing on a coordinate plane</a></p> <p><a href="#">Coordinate Graphing</a></p> <p><a href="#">Ounces, Pounds, &amp; Tons</a></p> <p><a href="#">Metric System Conversion Song</a></p> <p><a href="#">Brain Pop Metric System</a></p> <p><a href="#">Capacity US Standard</a></p> | <p><a href="#">Rat Race</a> (printable game – see <a href="#">Polypad Website Guide</a> for online game pieces)</p> <p><a href="#">Rush Hour</a>, <a href="#">Chocolate Fix</a>, <a href="#">Dog Crimes</a>, &amp; <a href="#">Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills.</p> <p><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving.<br/><a href="#">Try online here.</a></p> | <p><a href="#">Multiplication by Heart flashcards</a></p> <p><b>IXL</b><br/> <a href="#">Describe the coordinate plane</a><br/> <a href="#">Objects on a coordinate plane</a><br/> <a href="#">Graph points on a coordinate plane</a><br/> <a href="#">Quadrants</a></p> <p><a href="#">Estimate customary measurements</a><br/> <a href="#">Estimate metric measurements</a><br/> <a href="#">Convert and compare customary units</a><br/> <a href="#">Convert, compare, add, and subtract mixed customary units</a><br/> <a href="#">Multiply and divide mixed customary units</a><br/> <a href="#">Customary unit conversions involving fractions and mixed numbers</a><br/> <a href="#">Convert and compare metric units</a></p> <p><b>Kahn Academy</b><br/> <a href="#">Coordinate Plane Intro</a></p> <p><a href="#">Coordinate Plane</a> (Gr. 6)</p> <p><a href="#">Converting Units of Measure</a></p> | <p><b>Error! Hyperlink reference not valid.</b></p> <p><a href="#">Week 6 Printable Packet</a></p> <p><b>Math Tool Kit</b></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a></p> |

## Week 7: 2-D figures and how to measure them & surface area

| Videos   | Games  | Interactive Websites  | Printable Packet  |
|--|--|---|---|
| <a href="#">Area and Perimeter Song</a><br><br><a href="#">Brain Pop Area of a Triangle</a><br><br><a href="#">Formula for Area of a Triangle – why?</a><br><br><a href="#">Surface area rectangular prism</a><br><br><a href="#">Surface area of triangular prism</a> | <p>Number Run: all operations through 10 (<i>app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a></i>)</p> <p><a href="#">Rush Hour</a>, <a href="#">Chocolate Fix</a>, <a href="#">Dog Crimes</a>, &amp; <a href="#">Cat Crimes</a></p> <p>a physical game that helps students develop multi-step problem solving skills.</p> <p><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving.<br/><a href="#">Try online here.</a></p> | <p><a href="#">Multiplication by Heart flashcards</a></p> <p><b>IXL</b><br/><a href="#">Perimeter</a></p> <p><a href="#">Area of rectangles and squares</a></p> <p><a href="#">Understanding area of a parallelogram</a><br/><a href="#">Area of parallelograms</a></p> <p><a href="#">Understanding area of a triangle</a><br/><a href="#">Area of triangles</a></p> <p><a href="#">Area of compound figures</a><br/><a href="#">Area of compound figures with triangles</a></p> <p><a href="#">Volume of cubes and rectangular prisms</a><br/><a href="#">Volume of cubes and rectangular prisms with fractional side lengths</a><br/><a href="#">Volume of triangular prisms</a></p> <p><a href="#">Surface area of cubes and rectangular prisms</a><br/><a href="#">Surface area of triangular prisms</a><br/><a href="#">Surface area of pyramids</a></p> <p><a href="#">Relate volume and surface area</a></p> <p><b>Kahn Academy</b><br/><a href="#">Area and Perimeter</a><br/><a href="#">Area of Triangles and Parallelograms</a><br/><a href="#">Area of Composite Figures</a><br/><a href="#">Volume with Fractions</a><br/><a href="#">Volume of Rectangular Prisms</a><br/><a href="#">Surface Area</a></p> | <p>Error! Hyperlink reference not valid.</p> <p><a href="#">Week 7 Printable Packet</a></p>                             |
|  |  |   | <p>Math Tool Kit</p>  |
|  |  |   | <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a></p> |

## Week 8: Measures of Central Tendency – mean, median, & mode

| Videos  | Games  | Interactive Websites   | Printable Packet   |
|---|--|--|--|
| <a href="#">Mean, Median, &amp; Mode (longer)</a><br><a href="#">The Mean, Median, &amp; Mode</a><br><a href="#">Finding Mean, Median, &amp; Mode</a><br><a href="#">Mean, median, mode, &amp; range</a><br><a href="#">AWESOME SONG to the tune of Hey Diddle Diddle</a> | <p>Number Run: all operations through 10 (<i>app available through <a href="#">Apple App store</a> &amp; <a href="#">Google Play</a></i>)</p> <p><a href="#">Rush Hour, Chocolate Fix, Dog Crimes, &amp; Cat Crimes</a> a physical game that helps students develop multi-step problem solving skills.</p> <p><a href="#">Smart Games</a> has many physical, classic logic games that also help with multi-step problem solving.<br/> <a href="#">Try online here.</a></p> | <p><a href="#">Multiplication by Heart flashcards</a></p> <p><b>IXL</b><br/> <a href="#">Identify statistical questions</a></p> <p><a href="#">Find the mode</a><br/> <a href="#">Find the mean</a><br/> <a href="#">Find the median</a></p> <p><a href="#">Calculate mean, median, mode, and range</a></p> <p><b>Kahn Academy</b><br/> <a href="#">Statistical Questions</a></p> <p><a href="#">Mean and Median</a></p> | <p>Error! Hyperlink reference not valid.</p> <p><a href="#">Week 8 Printable Packet</a></p> <hr/> <p>Math Tool Kit</p> <hr/> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 1</a></p> <p><a href="#">5<sup>th</sup> Grade Math Tool Kit 2</a></p> |