

Benchmark Alignment and Adjustments

Investigations in Number, Data, & Space

Grade Four

The Benchmark Alignment and Adjustment page correlates the trimester benchmarks to the instructional program for Investigations in Number, Data, and Space and identifies the Units that provide instruction to address the concepts and skills within Trimester One. Benchmarks that are highlighted will need additional instruction to ensure students have developed the concepts and skills needed for success. Strategies for additional instruction and content support can be found in the Instructional Support Strategies/Resources section of the booklet.

Trimester One (Weeks 1 – 12)

- 1.4.2 Compare and describe fractions and/or decimals, as nearer one whole number than another [1.4]
- 1.4.2 Describe the need for fractions and their relationship to whole numbers and decimals [1.5]
- 1.4.6 Use estimations and mental computation in appropriate situations to solve problems [1.17]
- 1.4.7 Add and subtract decimals [1.20]
- 1.4.6 Estimate to determine reasonableness of an answer in mathematical and practical situations [1.16]
- 1.4.7 [Multiply and divide multi-digit numbers by a one-digit number with regrouping, including monetary amounts as decimals \[1.19\]](#)
- 1.4.7 [Add and subtract multi-digit numbers \[1.18\]](#)
- 2.4.1 Analyze, describe, create, and extend patterns using numbers, appropriate tables, and calculators [2.1]
- 2.4.1 [Identify, describe, represent, and explain patterns and relationships in the number system including arithmetic and geometric sequences \[2.2\]](#)
- 2.4.2 Select the solution to an equation from a given set of numbers [2.3]
- 2.4.2 Model, explain, and solve open number sentences involving addition, subtraction, multiplication, and division [2.4]
- 2.4.3 Complete number sentences with the appropriate words and symbols (+, -, x, ÷, >, <, =) [2.5]
- 3.4.1 Measure, compare, and convert length in inches, feet, yards, and miles to the nearest fractional part (1/4, 1/2) [3.3]
- 3.4.1 Estimate temperature in practical situations [3.2]
- 3.4.1 Estimate and convert units of measure for length, area, and weight within the same measurement system (customary and metric) [3.1]
- 3.4.3 [Define and determine the perimeter of polygons and area of rectangles, including squares \[3.6\]](#)**
- 3.4.4 Use money notations to add and subtract given monetary amounts [3.8]
- 4.4.1 Describe geometric patterns and relationships [4.2]
- 5.4.1 Organize and represent data using a variety of graphical representations including frequency tables and line plots [5.2]
- 5.4.1 Pose questions that can be used to guide the collection of categorical and numerical data [5.1]

- A.3-5 [Select, modify, develop, apply, and justify strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts \[A.1\]](#)
- A.3-5 [Apply previous experience and knowledge to new problem solving situations \[A.2\]](#)
- A.3-5 [Determine an efficient strategy, verify, interpret, and evaluate results with respect to the original problem \[A.3\]](#)
- A.3-5 Try more than one strategy when the first strategy proves to be unproductive [A.4]
- A.3-5 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists [A.5]
- A.3-5 Generalize solutions and strategies to new problem situations [A.6]

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- A.3-5 Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, and ensuring the answer is reasonable [A.7]
 Use technology, including calculators, to investigate and describe relationships such as patterns and functions, to develop mathematical concepts and solve problems [A.8]
- B.3-5 Discuss and exchange ideas about mathematics as part of learning [B.1]
 B.3-5 Use inquiry techniques (discussion, questioning, research, and data gathering) to solve mathematical problems [B.2]
 B.3-5 Identify and translate key words and phrases that imply mathematical operations [B.3]
 B.3-5 Use a variety of methods (physical materials, diagrams, and tables) to represent and communicate mathematical ideas through oral, verbal, and written formats [B.4]
 B.3-5 Use everyday language to make conjectures, explain, and justify thinking about strategies and solutions to mathematical problems [B.5]
 B.3-5 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing [B.6]
[B.3-5 Use mathematical words, phrases, and symbols to communicate and explain mathematical situations \[B.7\]](#)
- B.3-5 Read a variety of fiction and nonfiction texts to learn about mathematics [B.8]
 C.3-5 [Justify and explain the solutions to problems using manipulatives and physical models \[C.1\]](#)
 C.3-5 [Use patterns and relationships to analyze mathematical situations and draw logical conclusions about mathematical problems \[C.2\]](#)
 C.3-5 [Follow a logical argument and judge its validity \[C.3\]](#)
 C.3-5 [Ask questions to reflect on, clarify, and extend thinking \[C.4\]](#)
 C.3-5 Review and refine the assumptions and steps used to derive conclusions in mathematical arguments [C.5]
 C.3-5 Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems [C.6]
- D.3-5 Link new concepts to prior knowledge [D.1]
 D.3-5 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics [D.2]
[D.3-5 Use physical models to explain the relationship of concepts to procedures \[D.3\]](#)
 D.3-5 Apply mathematical thinking and modeling to solve problems that arise in other disciplines such as rhythm in music and motion in science [D.4]
 D.3-5 Approach problems with flexibility in a variety of ways within and beyond the field of mathematics [D.5]
 D.3-5 Identify, explain, and use mathematics in everyday life [D.6]

Unit

Provide instruction, Choice Time and Ten Minute Math from the following Units within the recommended time frame.

Mathematical Thinking at Grade 4

(3-4 weeks)

Ten Minute Math (as outlined in the Unit)

- Estimation and Number Sense
- Exploring Data

Arrays and Shares

(3-4 weeks)

Ten Minute Math (as outlined in the Unit)

- Counting Around the Class

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- Multiple BINGO

Landmarks in the Thousands

(3-4 weeks)

Ten Minute Math (as outlined in the Unit)

- What is Likely?
- Counting Around the Class

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The Benchmark Alignment and Adjustment page correlates the trimester benchmarks to the instructional program for Investigations in Number, Data, and Space and identifies the Units that provide instruction to address the concepts and skills within Trimester Two. Benchmarks that are highlighted will need additional instruction to ensure students have developed the concepts and skills needed for success. Strategies for additional instruction and content support can be found in the Instructional Support Strategies/Resources section of the booklet.

Trimester Two (Weeks 13 – 24)

- 1.4.7 Use subtraction to model and explain division [1.21]
- 1.4.2 Read and write proper and improper fractions and mixed numbers [1.3]
- [1.4.2 Identify fractions in their simplest form \[1.7\]](#)
- 1.4.2 Rename benchmark fractions as decimals and vice versa (e.g., $\frac{1}{4} = .25$, $\frac{1}{2} = .50$) [1.8]
- 1.4.7 Add and subtract fractions and mixed numbers with like denominators [1.9]
- 1.4.7 Describe the relationships of the operations of addition, subtraction, multiplication, and division [1.22]
- 1.4.7 Describe and use algorithms for addition, subtraction, multiplication, and division [1.23]
- 1.4.1 Identify and use place value positions of whole numbers up to one million [1.1]
- [1.4.2 Identify and compare fractions with like denominators using models, numbers, and drawings \[1.6\]](#)
- 1.4.3 Read and write number words [1.11]
- [1.4.5 Immediately recall and use multiplication and corresponding division facts \(products to 144\) \[1.15\]](#)
- [1.4.8 Generate and solve addition, subtraction, multiplication, and division problems using whole numbers in practical situations \[1.24\]](#)
- 3.4.6 Use elapsed time in quarter-hour increments, beginning on the quarter-hour, to determine start, end, and elapsed time [3.9]
- 3.4.6 Use A.M. and P.M. appropriately in describing time [3.11]
- 4.4.3 Identify coordinates for a given point in the first quadrant [4.5]
- 4.4.4 Identify, describe, and classify two- and three-dimensional figures by relevant properties including the number of vertices, edges, and faces using models [4.7]
- [5.4.3 Read, interpret, and discuss charts, tables, and graphs from books, newspapers, and magazines \[5.5\]](#)
- 5.4.1 Collect, organize, display, describe, and interpret simple data to solve problems [5.7]
- 5.4.2 Model the measures of central tendency for mode and median [5.3]
- 5.4.2 Model and compute range [5.4]
- A.3-5 Select, modify, develop, apply, and justify strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts [A.1]
- A.3-5 Apply previous experience and knowledge to new problem solving situations [A.2]
- A.3-5 Determine an efficient strategy, verify, interpret, and evaluate results with respect to the original problem [A.3]
- A.3-5 Try more than one strategy when the first strategy proves to be unproductive [A.4]
- A.3-5 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists [A.5]
- A.3-5 Generalize solutions and strategies to new problem situations [A.6]
- A.3-5 Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, and ensuring the answer is reasonable [A.7]
- A.3-5 Use technology, including calculators, to investigate and describe relationships such as patterns and functions, to develop mathematical concepts and solve problems [A.8]

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- B.3-5 Discuss and exchange ideas about mathematics as part of learning [B.1]
- B.3-5 Use inquiry techniques (discussion, questioning, research, and data gathering) to solve mathematical problems [B.2]
- B.3-5 Identify and translate key words and phrases that imply mathematical operations [B.3]
- [B.3-5 Use a variety of methods \(physical materials, diagrams, and tables\) to represent and communicate mathematical ideas through oral, verbal, and written formats \[B.4\]](#)
- B.3-5 Use everyday language to make conjectures, explain, and justify thinking about strategies and solutions to mathematical problems [B.5]
- B.3-5 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing [B.6]
- B.3-5 Use mathematical words, phrases, and symbols to communicate and explain mathematical situations [B.7]
- B.3-5 Read a variety of fiction and nonfiction texts to learn about mathematics [B.8]
- [C.3-5 Justify and explain the solutions to problems using manipulatives and physical models \[C.1\]](#)
- [C.3-5 Use patterns and relationships to analyze mathematical situations and draw logical conclusions about mathematical problems \[C.2\]](#)
- C.3-5 [Follow a logical argument and judge its validity \[C.3\]](#)
- C.3-5 [Ask questions to reflect on, clarify, and extend thinking \[C.4\]](#)
- C.3-5 Review and refine the assumptions and steps used to derive conclusions in mathematical arguments [C.5]
- [C.3-5 Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems \[C.6\]](#)
- D.3-5 Link new concepts to prior knowledge [D.1]
- D.3-5 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics [D.2]
- D.3-5 [Use physical models to explain the relationship of concepts to procedures \[D.3\]](#)
- [D.3-5 Apply mathematical thinking and modeling to solve problems that arise in other disciplines such as rhythm in music and motion in science \[D.4\]](#)
- D.3-5 Approach problems with flexibility in a variety of ways within and beyond the field of mathematics [D.5]
- D.3-5 Identify, explain, and use mathematics in everyday life [D.6]

Unit

Provide instruction, Choice Time and Ten Minute Math from the following Units within the recommended time frame.

Different Shapes, Equal Pieces		(3-4 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ Guess My Number	
Money, Miles, and Large Numbers		(3-4 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ Likely or Unlikely?	
Packages and Groups		(3-4 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ Exploring Data	
	➤ Guess My Number	

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The Benchmark Alignment and Adjustment page correlates the trimester benchmarks to the instructional program for Investigations in Number, Data, and Space and identifies the Units that provide instruction to address the concepts and skills within Trimester Three. Benchmarks that are highlighted will need additional instruction to ensure students have developed the concepts and skills needed for success. Strategies for additional instruction and content support can be found in the Instructional Support Strategies/Resources section of the booklet.

Trimester Three (Weeks 25 – 36)

- 1.4.1 Explain relative size (magnitude) of numbers using powers of ten (hundreds and thousands) as benchmarks [1.12]
- 1.4.1 Read and write decimals, extending to the thousandths place [1.2]
- 1.4.3 [Read, write, compare, and order whole numbers \[1.10\]](#)**
- 1.4.4 Count by multiples of a given number [1.13]
- 1.4.4 Explain relationships between skip counting, repeated addition, and multiples [1.14]
- 3.4.1 Measure, compare, and convert length in metric units (millimeter, centimeter, meter, kilometer) [3.4]
- 3.4.2 Measure length, area, temperature, and weight to a required degree of accuracy in customary and metric systems [3.5]
- 3.4.4 Determine totals for monetary amounts in practical situations [3.7]
- 3.4.6 Recognize the number of weeks in a year, days in a year, and days in a month [3.10]
- [4.4.6 Identify, describe, compare, and draw intersecting and parallel lines \[4.8\]](#)
- 4.4.3 Determine lines of symmetry and recognize rotational symmetry [4.4]
- [4.4.1 Identify, draw, and classify angles, including straight, right, obtuse, and acute \[4.1\]](#)
- [4.4.2 Identify shapes that are congruent, similar, and/or symmetrical using a variety of methods including transformational motions \(flips, turns, slides\) \[4.3\]](#)
- 4.4.3 Locate points of given coordinates on a grid in the first quadrant [4.6]
- [4.4.6 Identify, draw, label, and describe points, line segments, rays, and angles \[4.9\]](#)

- 4.4.9 Use connectors and, or, and not to describe the members of a set [4.10]
- 5.4.3 Interpret data and make predictions using frequency tables and line plots [5.6]
- [5.4.5 Conduct simple probability experiments using concrete materials \[5.8\]](#)
- 5.4.5 Represent the results of simple probability experiments as fractions to make predictions about future events [5.9]
- [A.3-5 Select, modify, develop, apply, and justify strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts \[A.1\]](#)
- [A.3-5 Apply previous experience and knowledge to new problem solving situations \[A.2\]](#)
- [A.3-5 Determine an efficient strategy, verify, interpret, and evaluate results with respect to the original problem \[A.3\]](#)
- A.3-5 Try more than one strategy when the first strategy proves to be unproductive [A.4]
- A.3-5 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists [A.5]
- A.3-5 Generalize solutions and strategies to new problem situations [A.6]
- A.3-5 Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, and ensuring the answer is reasonable [A.7]
- A.3-5 Use technology, including calculators, to investigate and describe relationships such as patterns and functions, to develop mathematical concepts and solve problems [A.8]
- B.3-5 Discuss and exchange ideas about mathematics as part of learning [B.1]
- B.3-5 Use inquiry techniques (discussion, questioning, research, and data gathering) to solve mathematical problems [B.2]

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- B.3-5 Identify and translate key words and phrases that imply mathematical operations [B.3]
- [B.3-5 Use a variety of methods \(physical materials, diagrams, and tables\) to represent and communicate mathematical ideas through oral, verbal, and written formats \[B.4\]](#)
- B.3-5 Use everyday language to make conjectures, explain, and justify thinking about strategies and solutions to mathematical problems [B.5]
- B.3-5 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing [B.6]
- B.3-5 Use mathematical words, phrases, and symbols to communicate and explain mathematical situations [B.7]
- B.3-5 Read a variety of fiction and nonfiction texts to learn about mathematics [B.8]
- [C.3-5 Justify and explain the solutions to problems using manipulatives and physical models \[C.1\]](#)
- [C.3-5 Use patterns and relationships to analyze mathematical situations and draw logical conclusions about mathematical problems \[C.2\]](#)
- [C.3-5 Follow a logical argument and judge its validity \[C.3\]](#)
- [C.3-5 Ask questions to reflect on, clarify, and extend thinking \[C.4\]](#)
- C.3-5 Review and refine the assumptions and steps used to derive conclusions in mathematical arguments [C.5]
- [C.3-5 Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems \[C.6\]](#)
- D.3-5 Link new concepts to prior knowledge [D.1]
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- [D.3-5 Apply mathematical thinking and modeling to solve problems that arise in other disciplines such as rhythm in music and motion in science \[D.4\]](#)
- D.3-5 Approach problems with flexibility in a variety of ways within and beyond the field of mathematics [D.5]
- D.3-5 Identify, explain, and use mathematics in everyday life [D.6]

Unit

Provide instruction, Choice Time and Ten Minute Math from the following Units within the recommended time frame.

Three Out of Four Like Spaghetti		(1-2 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ What Is Likely?	
Seeing Solids and Silhouettes		(1-2 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ Quick Images	
The Shape of the Data		(3-4 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ Estimation and Number Sense	
	➤ Broken Calculator	
Sunken Ships and Grid Patterns		(2-3 weeks)
<u>Ten Minute Math</u> (as outlined in the Unit)	➤ Lengths and Perimeters	