

A Correlation of

INVESTIGATIONS   
IN NUMBER, DATA, AND SPACE®



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To the  
**Indiana Academic Standards  
for Mathematics (2014)**  
Grade 5

**A Correlation of Investigations 3 in Number, Data, and Space, ©2017  
to the Indiana Academic Standards for Mathematics (2014)**

**Introduction**

This document demonstrates how *Investigations 3* in Number, Data, and Space, ©2017, aligns to the Indiana Academic Standards for Mathematics (2014), Grades K-5. Correlation references are to the Sessions of Investigations 3.

*Investigations in Number, Data, and Space*® 3<sup>rd</sup> Edition, known as Investigations 3, maintains the standard of excellence as a focused and coherent program that supports students to make sense of mathematical ideas and supports their teachers to make sense of both mathematics content and student thinking.

The guiding principles from *Investigations 2*nd Edition are maintained in *Investigations 3*. These guiding principles are:

- 1) Students have mathematical ideas and are given the opportunity to learn in an environment that focuses on making sense of mathematics. Students build on the ideas they already have and learn about new mathematics they have never encountered.
- 2) Teachers are engaged in ongoing learning about mathematics content, pedagogy, and student learning.
- 3) Teachers collaborate with the students and use the curriculum to maintain a clear, focused, and coherent agenda for mathematics teaching.

*Investigations 3* ensures that its instructional approach works in a wide variety of classrooms. It maintains full availability for classrooms that use print materials and provides access to digital enhancements for both teachers and students in classrooms with regular or periodic access to those technologies.

*Investigations 3* offers digital tools and technologies to enhance its research-based, field tested, and proven instructional model. These tools provide teachers with easy access to the professional development materials that are a hallmark of the program, support classroom management tasks, and help students capture and share their work.

Core program resources for teaching and learning will be made available on Savvas' latest learning management system, Savvas Realize™.

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**Grade 5 Units**

Unit 1 - Puzzles, Clusters, and Towers

Unit 2 - Prisms and Solids

Unit 3 - Rectangles, Clocks, and Tracks

Unit 4 - How Many People and Teams?

Unit 5 - Temperature, Height, and Growth

Unit 6 - Between 0 and 1

Unit 7 - Races, Arrays, and Grids

Unit 8 - Properties of Polygons

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<b>PROCESS STANDARDS FOR MATHEMATICS</b>	
<b>PS.1:</b> Make sense of problems and persevere in solving them.	<b>Unit 1:</b> 1.1, 1.3, 2.2, 2.4, 2.5, 3.2, 3.5 <b>Unit 7:</b> 1.1, 1.4, 1.7, 1.11, 2.1, 2.3, 3.2, 3.4, 3.5, 3.6, 3.8, 3.10
<b>PS.2:</b> Reason abstractly and quantitatively.	<b>Unit 4:</b> 1.2, 2.1, 2.4, 2.5, 3.1, 3.4 <b>Unit 8:</b> 2.1, 2.2, 2.4, 2.5
<b>PS.3:</b> Construct viable arguments and critique the reasoning of others.	<b>Unit 3:</b> 1.1, 1.2, 1.5, 2.1, 2.3, 2.6, 3.2, 3.3, 3.5 <b>Unit 8:</b> 1.1, 1.3, 1.5, 2.1, 2.3, 2.4, 2.5
<b>PS.4:</b> Model with mathematics.	<b>Unit 1:</b> 3.3, 3.5 <b>Unit 2:</b> 1.1, 1.4, 1.6, 1.8, 2.2 <b>Unit 3:</b> 3.4 <b>Unit 7:</b> 1.2
<b>PS.5:</b> Use appropriate tools strategically.	<b>Unit 1:</b> 1.3, 2.6, 3.2, <b>Unit 2:</b> 1.2, 1.5, 1.7, 2.1, 2.3 <b>Unit 3:</b> 1.4, 2.2 <b>Unit 6:</b> 1.6 <b>Unit 7:</b> 2.2
<b>PS.6:</b> Attend to precision.	<b>Unit 4:</b> 1.1, 1.3, 2.1, 2.2, 2.7, 3.2 <b>Unit 6:</b> 1.1, 1.3, 1.4, 1.5, 1.6, 2.2, 2.4, 2.6, 2.7
<b>PS.7:</b> Look for and make use of structure.	<b>Unit 1:</b> 1.1, 1.2, 2.2, 2.4, 3.1, 3.4, 3.5 <b>Unit 7:</b> 1.1, 1.3, 1.7, 1.8, 2.1, 2.4, 2.5, 2.8
<b>PS.8:</b> Look for and express regularity in repeated reasoning.	<b>Unit 3:</b> 1.1, 1.3, 1.4, 1.6, 2.1, 2.5, 2.7, 3.3, 3.6 <b>Unit 7:</b> 1.3, 1.6, 1.8, 1.9, 1.10, 2.2, 2.3, 2.4, 3.3, 3.4, 3.8
<b>Mathematics Standards for Grade 5</b>	
<b>NUMBER SENSE</b>	
<b>5.NS.1:</b> Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using $>$ , $=$ , and $<$ symbols.	<b>Unit 3:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 3.3, 3.4 <b>Unit 6:</b> 1.1, 1.3, 1.4, 1.5, 1.7, 1.8, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9 <b>Unit 7:</b> 1.2, 1.3, 1.4, 2.2

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<b>5.NS.2:</b> Explain different interpretations of fractions, including: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6 <b>Unit 7:</b> 1.7, 1.8, 1.9, 1.10, 2.1, 2.2
<b>5.NS.3:</b> Recognize the relationship that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right, and inversely, a digit in one place represents 1/10 of what it represents in the place to its left.	<b>Unit 6:</b> 1.1, 1.2, 1.6, 1.7, 1.8 <b>Unit 7:</b> 3.1, 3.2, 3.4, 3.5, 3.6, 3.7
<b>5.NS.4:</b> Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	<b>Unit 1:</b> 2.3, 2.4, 2.5, 3.2, 3.3, 3.4, 3.6, 3.7 <b>Unit 4:</b> 1.4, 1.5, 2.1, 2.2, 2.6, 2.7, 3.1, 3.4, 3.5 <b>Unit 5:</b> 1.5, 1.6 <b>Unit 7:</b> 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11
<b>5.NS.5:</b> Use place value understanding to round decimal numbers up to thousandths to any given place value.	<b>Unit 6:</b> 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4
<b>5.NS.6:</b> Understand, interpret, and model percents as part of a hundred (e.g. by using pictures, diagrams, and other visual models).	For supporting content, please see: <b>Unit 7:</b> 2.1, 2.2, 2.3, 2.4
<b>COMPUTATION</b>	
<b>5.C.1:</b> Multiply multi-digit whole numbers fluently using a standard algorithmic approach.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3 <b>Unit 2:</b> 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4 <b>Unit 3:</b> 1.1, 2.1, 2.2, 2.3, 2.4, 2.5 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 5:</b> 1.1, 1.4 <b>Unit 6:</b> 1.3, 1.4, 1.5, 2.1, 2.2, 2.3 <b>Unit 7:</b> 2.2 <b>Unit 8:</b> 2.3, 2.4, 2.5

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<b>5.C.2:</b> Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning used.	<b>Unit 1:</b> 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 2:</b> 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, <b>Unit 3:</b> 1.1, 1.2, 2.1, 2.2 <b>Unit 4:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 6:</b> 1.3, 1.4, 1.5, 2.1, 2.3 <b>Unit 7:</b> 2.2, 2.3
<b>5.C.3:</b> Compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	<b>Unit 7:</b> 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11
<b>5.C.4:</b> Add and subtract fractions with unlike denominators, including mixed numbers.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4 <b>Unit 4:</b> 1.1, 1.5 <b>Unit 8:</b> 2.3, 2.4, 2.5
<b>5.C.5:</b> Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number.	<b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 1.10, 1.11
<b>5.C.6:</b> Explain why multiplying a positive number by a fraction greater than 1 results in a product greater than the given number. Explain why multiplying a positive number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence, $a/b = (n \times a)/(n \times b)$ , to the effect of multiplying $a/b$ by 1.	<b>Unit 7:</b> 1.3, 1.4, 1.5
<b>5.C.7:</b> Use visual fraction models and numbers to divide a unit fraction by a non-zero whole number and to divide a whole number by a unit fraction.	<b>Unit 7:</b> 1.9, 1.10, 1.11, 2.1, 2.4, 3.9, 3.10, 3.11
<b>5.C.8:</b> Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.	<b>Unit 6:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11 <b>Unit 8:</b> 2.2

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<b>5.C.9:</b> Evaluate expressions with parentheses or brackets involving whole numbers using the commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.4, 3.5, 3.6, 3.7 <b>Unit 3:</b> 2.3, 2.4, 2.5, 3.1, 3.2 <b>Unit 4:</b> 2.1 <b>Unit 5:</b> 1.5, 1.6, 1.7, 2.5, 2.6, 2.7 <b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5
<b>ALGEBRAIC THINKING</b>	
<b>5.AT.1:</b> Solve real-world problems involving multiplication and division of whole numbers (e.g. by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.	<b>Unit 1:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 <b>Unit 2:</b> 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4 <b>Unit 3:</b> 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5 <b>Unit 6:</b> 1.3, 1.4, 1.5, 2.1, 2.2, 2.3 <b>Unit 7:</b> 2.2, 2.3 <b>Unit 8:</b> 2.3, 2.4, 2.5
<b>5.AT.2:</b> Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.	<b>Unit 3:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.3, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 <b>Unit 4:</b> 1.1, 1.2, 1.3, 1.4, 1.5 <b>Unit 6:</b> 1.1, 1.2, 1.3
<b>5.AT.3:</b> Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem).	<b>Unit 8:</b> 2.3, 2.4, 2.5
<b>5.AT.4:</b> Solve real-world problems involving division of unit fractions by non-zero whole numbers, and division of whole numbers by unit fractions (e.g., by using visual fraction models and equations to represent the problem).	<b>Unit 7:</b> 1.9, 1.10, 1.11, 3.9, 3.10, 3.11

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<b>5.AT.5:</b> Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations to represent the problem).	<b>Unit 6:</b> 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 <b>Unit 7:</b> 1.1, 1.2, 1.3, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11 <b>Unit 8:</b> 2.2
<b>5.AT.6:</b> Graph points with whole number coordinates on a coordinate plane. Explain how the coordinates relate the point as the distance from the origin on each axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	<b>Unit 5:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.3, 2.4, 2.5, 2.6, 2.7
<b>5.AT.7:</b> Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	<b>Unit 5:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 2.3, 2.4, 2.5, 2.6, 2.7
<b>5.AT.8:</b> Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values.	<b>Unit 1:</b> 1.2, 2.3, 2.4, 2.5, 2.7, 3.6, 3.7 <b>Unit 3:</b> 3.3, 3.4 <b>Unit 5:</b> 2.5
<b>GEOMETRY</b>	
<b>5.G.1:</b> Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.	<b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5,
<b>5.G.2:</b> Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.	<b>Unit 8:</b> 1.1, 1.2, 1.3, 1.4, 1.5, 2.2
<b>MEASUREMENT</b>	
<b>5.M.1:</b> Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step real-world problems.	<b>Unit 7:</b> 3.8, 3.9, 3.10, 3.11 <b>Unit 8:</b> 1.1, 1.3, 2.1, 2.3



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<b>5.M.2:</b> Find the area of a rectangle with fractional side lengths by modeling with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	<b>Unit 7:</b> 1.7, 1.8, 1.11
<b>5.M.3:</b> Develop and use formulas for the area of triangles, parallelograms and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms and trapezoids, using appropriate units for measures.	<b>Unit 2:</b> 1.5, 2.1 <b>Unit 8:</b> 2.1, 2.2, 2.3, 2.4, 2.5
<b>5.M.4:</b> Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths or multiplying the height by the area of the base.	<b>Unit 2:</b> 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4
<b>5.M.5:</b> Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems.	<b>Unit 2:</b> 1.2, 1.5, 1.6, 2.1, 2.3, 2.4
<b>5.M.6:</b> Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems and other mathematical problems.	<b>Unit 2:</b> 1.6, 1.7, 1.8, 2.4
<b>DATA ANALYSIS AND STATISTICS</b>	
<b>5.DS.1:</b> Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.	<b>Unit 3:</b> 3.5, 3.6

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<b>5.DS.2:</b> Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.	For supporting content, please see: <b>Unit 3:</b> 3.5, 3.6 <b>Unit 4:</b> 3.1, 3.2 <b>Unit 5:</b> 1.2, 1.3, 1.4, 1.5, 1.6, 1.7