

A Correlation of

INVESTIGATIONS  ©2017
IN NUMBER, DATA, AND SPACE®



to the

**West Virginia Evaluation Criteria
Grade 5**

**A Correlation of Investigations 3 in Number, Data, and Space ©2017
to the West Virginia Evaluation Criteria
Group VI Mathematics Grade 5**

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**NON-NEGOTIBLE EVALUATION CRITERIA
2018-2024
Group VI – Mathematics
Grade 5**

Equity, Accessibility and Format				
Yes	No	N/A	CRITERIA	NOTES
X			<p>1. INTER-ETHNIC The instructional materials meets the requirements of inter-ethnic: concepts, content and illustrations, as set by WV Board of Education Policy (Adopted December 1970).</p>	<p>Inter-ethnic representations are evident throughout the <i>Investigations3</i> program. Illustrations, activities, word-problems, assessments, examples, and extra materials include examples of different ethnicities and cultures. Students gain a sense that mathematics transcends differences in culture and ethnicity.</p> <p>See the following examples: Unit 1: 1.4, 2.1, 2.3, 2.4, 3.3 Unit 3: 1.5, 1.6, 3.1 Unit 5: 1.1, 1.3, 1.4, 1.6, 1.7, 2.2, 2.6</p>
X			<p>2. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concepts, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by WV Board of Education Policy (Adopted May 1975).</p>	<p>The <i>Investigations3</i> program offers examples of equal opportunity throughout each unit, lesson, example, and real-world problem. Boys and girls, men and women of different backgrounds and ethnicities are represented as achieving and contributing in equal ways in the classroom and to society.</p> <p>See the following examples: Unit 1: 1.1, 1.3, 1.5, 2.1, 2.7, 3.4 Unit 3: 3.4 Unit 5: 2.4</p>

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Equity, Accessibility and Format				
Yes	No	N/A	CRITERIA	NOTES
X			<p>3. FORMAT This resource is available as an option for adoption in an interactive electronic format.</p>	<p>In addition to the physical textbook version, <i>Investigations3</i> is also available for grades K-5 at PearsonRealize.com. Throughout the program, students are engaged in the main math concepts of each lesson which include viewing and making digital presentations, engaging videos, digital tools, interactive games, and online assessments.</p>
X			<p>4. BIAS The instructional material is free of political bias.</p>	<p>The instructional material consists of an integration of mathematical content and practices, including contextual and cross-curricular applications that is free from political bias. Students are given opportunities to explore and express their own feelings and perspectives, but there is no political commentary or philosophical bias embedded in the program content or presentation.</p>

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**GENERAL EVALUATION CRITERIA
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The general evaluation criteria apply to each grade level and are to be evaluated for each grade level unless otherwise specified. These criteria consist of information critical to the development of all grade levels. In reading the general evaluation criteria and subsequent specific grade level criteria, **e.g. means “examples of” and i.e. means that “each of” those items must be addressed.** Eighty percent of the general and eighty percent of the specific criteria must be met with I (in-depth) or A (adequate) in order to be recommended.

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	I=In-depth, A=Adequate, M=Minimal, N=Nonexistent	I	A	M	N
	<i>In addition to alignment of Content Standards, materials must also clearly connect to Learning for the 21st Century which includes opportunities for students to develop:</i>				
Use Problem Solving Skills					
<i>For student mastery of content standards, the instructional materials will include multiple strategies that provide students with opportunities to:</i>					
<p><i>Investigations3</i> guides students in making sense of new mathematical content. “Classroom Routines and Math Workshops” provide opportunities for students to interact with the concepts and discover the best path to solving problems.</p> <p>See the following examples: Unit 1: 1.1, 1.3, 2.2, 2.4, 2.5, 3.2, 3.5 Unit 7: 1.1, 1.4, 1.7, 1.11, 2.1, 2.3, 3.2, 3.4, 3.5, 3.6, 3.8, 3.10</p>	<p>1. Make sense of problems and persevere in solving them;</p>				

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<p>Mathematical precision is used in solving problems, labeling representations, and using proper vocabulary when communicating ideas. In <i>Investigations3</i>, students are required to use precise calculations as well as precise language when describing their processes.</p> <p>See the following examples: Unit 4: 1.1, 1.3, 2.1, 2.2, 2.4, 2.5, 2.7, 3.2 Unit 6: 1.1, 1.3, 1.4, 1.5, 1.6, 2.2, 2.4, 2.6, 2.7</p>	2. attend to precision;							
<p>Each session includes hands-on activities that are both student and teacher directed. Students build upon their prior knowledge as they add new concepts to more complicated problem situations.</p> <p>See the following examples: Unit 1: 1.2, 1.3, 1.4, 1.5, 2.2, 2.4, 2.5, 2.6, 3.2, 3.4, 3.5, 3.7 Unit 4: 1.1, 1.3, 1.5, 2.3, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4 Unit 6: 1.1, 1.3, 1.5, 1.6, 1.8, 2.1, 2.2, 2.5, 2.7, 2.8, 2.9 Unit 8: 1.1, 1.3, 1.4, 2.1, 2.3, 2.4</p>	3. deepen understanding through meaningful and challenging teacher and/or student directed inquiry-based learning that builds number sense using prior knowledge and promotes interdisciplinary connections;							

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<p>Each session in <i>Investigations3</i> includes real-world problems where students learn to contextualize the quantities in the problems and relate those quantities to the sought solution. Students learn to interpret symbols as having meaning and effect upon the numbers in the problem. Teacher materials guide educators in asking questions and deepening students' process of reasoning.</p> <p>See the following examples: Unit 4: 1.2, 2.1, 2.4, 2.5, 3.1, 3.3, 3.4 Unit 8: 2.1, 2.2, 2.4, 2.5</p>	4. reason abstractly and quantitatively;							
<p><i>Investigations3</i> cultivates students' ability to explain their own reasoning and discuss that of others. Students are encouraged to communicate their mathematical process and solutions both in written and verbal form. As students work through each grade of this curriculum, they mature in their ability to construct viable arguments.</p> <p>See the following examples: Unit 3: 1.1, 1.2, 1.5, 2.1, 2.2, 2.3, 2.6, 3.2, 3.3, 3.5 Unit 8: 1.1, 1.3, 1.5, 2.1, 2.3, 2.4, 2.5</p>	5. construct viable arguments and critique the reasoning of others							

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<p><i>Investigations3</i> helps students to reach outside of themselves as well as outside of the classroom to apply mathematics to real-world contexts. Each session gives students the opportunity to use both digital resources and real-world examples to solidify the concept.</p> <p>See the following examples: Unit 1: 2.2, 2.6, 2.7, 3.2, 3.4, 3.6 Unit 2: 1.1, 1.3, 1.4, 1.7, 1.8, 2.3, 2.4 Unit 5: 1.1, 1.2, 1.3, 1.5, 1.6, 2.2, 2.5, 2.6, 2.7 Unit 7: 1.4, 1.7, 1.8, 1.11, 2.1, 2.2, 2.3, 3.2, 3.8, 3.10, 3.11</p>	6. make informed choices by interacting with outside resources through opportunities for local and global collaboration in a variety of safe venues							
<p>Each session in <i>Investigations3</i> includes opportunities for students to learn from mathematical models as well as create their own mathematical models. Students relate geometric shapes to real-world objects, create tables and graphs, and draw pictures to represent mathematical problems. As students apply these models to their knowledge of the math concepts, they solidify their understanding.</p> <p>See the following examples: Unit 2: 1.1, 1.4, 1.6, 1.7, 1.8, 2.2 Unit 5: 1.1, 1.2, 1.3, 1.4, 1.7, 2.1, 2.3, 2.5</p>	7. model with mathematics;							

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<p>Students use a variety of tools to support their work in understanding each mathematical concept. <i>Investigations3</i> helps students to select and utilize the appropriate tools to effectively solve each problem.</p> <p>See the following examples: Unit 2: 1.2, 1.5, 1.7, 2.1, 2.2, 2.3 Unit 5: 1.1, 1.2, 1.3, 1.6, 2.1, 2.5</p>	8. use appropriate tools strategically;							
<p><i>Investigations3</i> provides a variety of digital resources to help students engage in each session's topic. Throughout the program, students utilize technology concepts which include viewing and making digital presentations, engaging videos, digital tools, interactive games, and online assessments.</p> <p>See the following examples: Unit 2: 1.2, 1.3, 1.4, 1.7, 2.1, 2.2, 2.4 Unit 3: 1.1, 1.3, 1.6, 2.1, 2.2, 2.4, 2.5, 2.6, 3.1, 3.4 Unit 6: 1.1, 1.3, 1.4, 1.8, 2.1, 2.2, 2.5, 2.7, 2.9 Unit 8: 1.1, 1.2, 1.4, 2.1, 2.3, 2.4, 2.5</p>	9. use appropriate technology tools for a variety of purposes							

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<p><i>Investigations3</i> guides students in recognizing the structure of the mathematical concepts in each session. Students learn to use structures such as place value, properties of operations, and attributes of shapes to gain a comprehensive understanding.</p> <p>See the following examples: Unit 1: 1.1, 1.2, 2.2, 2.4, 3.1, 3.4, 3.5, 3.6 Unit 6: 1.1, 1.3, 1.7, 1.8, 2.1, 2.4, 2.5, 2.8</p>	10. look for and make use of structure									
<p>Throughout each unit and session, students engage in routines and games that, over time, allow the students to notice regularities in related problems. Students are encouraged to verbalize and discuss these findings and utilize their new discoveries with similar mathematical problems.</p> <p>See the following examples: Unit 3: 1.1, 1.3, 1.4, 1.6, 2.1, 2.5, 2.7, 3.2, 3.3, 3.6 Unit 7: 1.3, 1.6, 1.8, 1.9, 1.10, 2.2, 2.3, 2.4, 3.3, 3.4, 3.8</p>	11. look for and express regularity in repeated reasoning.									

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Personal and Workplace Productivity Skills					
<i>For student mastery of content standards, the instructional materials will include multiple strategies that provide students with opportunities to:</i>					
<p>Students engage with each other as teachers lead them through discussions, activities, games, and projects. Students have opportunities to work with both partners and groups to find solutions to problems.</p> <p>See the following examples: Unit 1: 2.2, 2.6, 2.7, 3.2, 3.4, 3.6 Unit 2: 1.1, 1.3, 1.4, 2.3, 2.4 Unit 5: 1.1, 1.2, 1.3, 1.5, 2.2, 2.5, 2.6, 2.7 Unit 7: 1.4, 1.7, 1.8, 1.11, 2.1, 2.3, 3.2, 3.8, 3.11</p>	<p>12. work collaboratively;</p>				
<p><i>Investigations3</i> helps students to build time-management skills as they complete activities and projects (both individual and with partners) in the time allotted. Students also experience time-management throughout the session as each lesson progresses from “Classroom Routine” to the “Activity” to the “Math Workshop” to “Review and Practice.”</p> <p>See the following examples: Unit 1: 1.2, 1.4, 1.5, 2.2, 2.4, 2.6, 3.2, 3.4, 3.5, 3.7 Unit 4: 1.1, 1.3, 2.3, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4 Unit 6: 1.1, 1.3, 1.5, 1.8, 2.1, 2.2, 2.5, 2.7, 2.9 Unit 8: 1.1, 1.3, 1.4, 2.1, 2.4</p>	<p>13. practice time-management and project management skills in problem-based learning situations.</p>				

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Developmentally Appropriate Instructional Resources and Strategies					
<i>For student mastery of content standards, the instructional materials:</i>					
<p><i>Investigations3</i> devotes the majority of instruction to the critical areas in each grade. Critical concepts are taught, then integrated into later units and lessons. Grade 5 critical areas include developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions, extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations, and developing understanding of volume.</p> <p>See the following examples: Unit 1: 2.1, 2.4, 2.5, 2.7, 3.1, 3.3, 3.4, 3.5, 3.7 Unit 2: 1.2, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.4 Unit 3: 2.2, 2.3, 2.4, 2.7, 3.2, 3.3, 3.5, 3.6 Unit 4: 1.1, 1.3, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 2.7 Unit 6: 2.3, 2.4, 2.5, 2.6, 2.8, 2.9 Unit 7: 1.1, 1.3, 1.5, 1.6, 1.8, 1.9, 1.10, 1.11, 3.1, 3.3, 3.4, 3.5, 3.7, 3.10, 3.11</p>	<p>14. are designed to devote the large majority of time to the critical areas of the grade as noted in the narrative written above the grade level standards;</p>				

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<p>Each mathematical concept is used throughout the units in each grade in order to create tangible connections between activities and real-world application. Students engage with the concepts through games, activities, problems, discussion, and technology.</p> <p>See the following examples: Unit 1: 2.2, 2.7, 3.3, 3.5 Unit 4: 1.1, 1.4, 2.2, 2.6, 3.3 Unit 5: 1.5, 1.6, 2.4, 2.6 Unit 7: 1.3, 1.7, 1.11, 2.4, 3.3, 3.7, 3.10</p>	<p>15. include suggestions for appropriate scaffolding and provide opportunities to engage in high interest, age-appropriate activities that simulate real-life situations, and make cross-curricular, global connections;</p>							
<p><i>Investigations3</i> provides students with hands-on, engaging activities. Students are able to experience the concepts as they are learning. Students connect visually to printed pictures, graphs, charts, videos, etc. They also learn kinesthetically as they use manipulatives such as connecting cubes, attribute blocks, drawing utensils, and measuring devices.</p> <p>See the following examples: Unit 1: 1.1, 1.5, 2.2, 3.2, 3.4, 3.5 Unit 3: 1.1, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 3.4, 3.6 Unit 5: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.3, 2.5, 2.6, 2.7 Unit 7: 2.1, 2.2, 2.3, 2.4</p>	<p>16. provide students with opportunities to use print, graphs, visual displays, developmentally appropriate manipulatives, media and technology sources to acquire and apply new information;</p>							

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<p>Students are encouraged to use precise vocabulary when engaging in activities, discussions, and problem-solving experiences. Each session has a list of vocabulary words included and students use these words throughout the session as well as in future mathematical activities.</p> <p>See the following examples: Unit 4: 1.3, 1.4 Unit 5: 1.1, 1.4, 2.1 Unit 6: 1.1, 1.2, 1.4, 2.2 Unit 8: 1.1, 1.2, 2.1</p>	<p>17. include best practices that emphasize the importance of authentic vocabulary acquisition using multiple methods and modes that motivate and increase vocabulary skills;</p>							
<p><i>Investigations3</i> is uniquely designed for students of all learning types and levels. Teacher’s materials include a number of sections in each session titled “Differentiation.” These sections offer support for a range of learners. Interventions for students who need extra help as well as extension opportunities for students who need further challenge are all included in each session.</p> <p>See the following examples: Unit 2: 1.2, 1.4, 1.7, 2.3, 2.4 Unit 4: 1.2, 1.4, 2.2, 2.4, 2.6 Unit 5: 1.1, 1.2, 1.5, 2.2, 2.4, 2.5 Unit 6: 1.3, 1.4, 1.5, 2.1, 2.3, 2.4, 2.5</p>	<p>18. support personalized learning through intervention and enrichment activities;</p>							

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Teachers and students have an array of interactive digital resources available to them through the Investigations3 program. www.pearsonrealize.com is full of activities, games, practice problems, assessments, and other enhancements that aid teachers in creating a learning experience for students.	19. provide a dynamic, interactive website for students to access electronic resources (i.e., podcasts, videos, skill-based games, etc.). The media included in the instructional materials must enhance and support instruction and learning;							
The teacher's edition of each unit includes, at the end of the book, a section labeled, "Professional Development." With this resource, teachers have the opportunity to enhance their own skills in teaching each concept. Teachers also have access to a multitude of resources through www.pearsonrealize.com .	20. include a professional resource that builds content and pedagogical knowledge for the teacher.							

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Assessment					
<p>All assessments in the <i>Investigations3</i> program are available in print and digital format. Teachers are guided in assessing students through observing their work, observing their ability to communicate the concept accurately, and achieving pre-set benchmarks which have been assigned to each unit. Specific activities throughout the units are marked as “Portfolio Opportunities” which are collected from each student so that the teacher can have an accurate sample of student work to assess. Students are assessed throughout each unit and at the end of each investigation.</p> <p>See the following examples: Unit 1: 2.2, 2.7, 3.3, 3.5 Unit 4: 1.1, 1.4, 2.2, 2.6, 3.3 Unit 5: 1.5, 1.6, 2.4, 2.6 Unit 7: 1.3, 1.7, 1.11, 2.4, 3.3, 3.7, 3.10</p>	<p>21. Instructional materials provide tools for a balanced approach to assessment including diagnostic, formative and summative assessments in multiple formats (i.e., rubrics, performance tasks, open-ended questions, portfolio evaluation, and multimedia simulations).</p>				

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Organization, Presentation and Format					
<p>Each Grade is organized into Units, Investigations, and Sessions. Sessions include numerous interactive activities, games, and other hands-on experiences. The teacher's edition includes multiple suggestions for teaching each concept in a way that is motivational and engaging.</p> <p>See the following examples: Unit 3: 1.1, 1.3, 1.6, 2.1, 2.2, 2.4, 2.5, 2.6, 3.1, 3.4 Unit 6: 1.1, 1.3, 1.4, 1.8, 2.1, 2.2, 2.5, 2.7, 2.9 Unit 8: 1.1, 1.2, 1.4, 2.1, 2.3, 2.4, 2.5</p>	<p>22. Information is organized logically and presented clearly using multiple methods and modes for delivering differentiated instruction that motivates and increases numeracy as students engage in high interest, authentic activities.</p>				
<p>The student e-text is available at www.pearsonrealize.com. In addition to the student edition text, they can access videos, teacher presentations, assessments, games, math tools, and other online resources.</p>	<p>23. Instructional materials include an electronic file of the student edition provided on an electronic data storage device (e.g., CD, DVD, USB drive, etc.) and through a link on the publisher's server, both of which are accessible by an internet-enabled device that can open standard file formats.</p>				

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<p>Each new unit includes a “Family Letter” that is sent home to engage parents in the new topics and concepts. Parents are encouraged to have conversations with their students and involve themselves in the homework process. Receiving support from home as well as in the classroom is crucial to the mathematical success of each student.</p> <p>See the following examples: Unit 1: 1.1 Unit 3: 1.1, 1.2 Unit 6: 1.1 Unit 8: 1.1, 1.2</p>	<p>24. The materials engage parents in appropriate ways. For example, homework assignments in elementary grades consists of routine problems, practice with getting answers and fluency-building exercises that parents can easily support.</p>							

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**SPECIFIC EVALUATION CRITERIA
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All West Virginia teachers are responsible for classroom instruction that integrates content standards and mathematical habits of mind. Students in the fifth grade will focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; (3) developing an understanding of volume. Mathematical habits of mind, which should be integrated in these content areas, include: making sense of problems and persevering in solving them, reasoning abstractly and quantitatively; constructing viable arguments and critiquing the reasoning of others; modeling with mathematics; using appropriate tools strategically; attending to precision, looking for and making use of structure; and looking for and expressing regularity in repeated reasoning. Students in fifth grade will continue developing mathematical proficiency in a developmentally-appropriate progressions of standards. Continuing the skill progressions from fourth grade, the following chart represents the mathematical understandings that will be developed in fifth grade:

Operations and Algebraic Thinking	Number and Operations in Base Ten
<ul style="list-style-type: none"> • Write and interpret numerical expressions. • Analyze mathematical patterns and relationships. 	<ul style="list-style-type: none"> • Understand the place value system. • Generalize the place-value system to include decimals, and calculate with decimals to the hundredths place (two places after the decimal). • Multiply whole numbers quickly and accurately, for example $1,638 \times 753$, and divide whole numbers in simple cases, such as dividing 6,971 by 63.
Number and Operations- Fractions	Measurement and Data
<ul style="list-style-type: none"> • Add and subtract fractions with like and unlike denominators (e.g., $2\frac{1}{4} - 1\frac{1}{3}$), and solve word problems of this kind. • Multiply fractions; divide fractions in simple cases; and solve related word problems (e.g., find the area of a rectangle with fractional side lengths; determine how many $\frac{1}{3}$-cup servings are in 2 cups of raisins; determine the size of a share if 9 people share a 50-pound sack of rice equally or if 3 people share $\frac{1}{2}$ pound of chocolate equally). 	<ul style="list-style-type: none"> • Convert like measurement units within a given measurement system. • Make a line plot to display a data set with fractional units of measure and interpret the data to solve problems. • Geometric measurement: Understand the concept of volume, and solve word problems that involve volume.
Geometry	
<ul style="list-style-type: none"> • Graph points on the coordinate plane to solve real-world and mathematical problems. • Classify two-dimensional figures into categories based on their properties. 	

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For student mastery of content standards, the instructional materials will provide students with the opportunity to

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Operations and Algebraic Thinking						
Write and Interpret numerical expressions.						
Unit 1: 1.4, 1.5, TMM 3.4, TMM 3.5, TMM 3.6, TMM 3.7 Unit 3: TMM 2.3, TMM 2.4, TMM 2.5, Unit 5: TMM 1.6, TMM 1.7, TMM 2.4, TMM 2.5, TMM 2.6, TMM 2.7 Unit 8: TMM 2.2, TMM 2.3 SAB 19-20, 25, 40, 58, 179, 181, 225	1. Use parentheses, brackets or braces in numerical expressions and evaluate expressions with these symbols.					
Unit 1: 1.2, 2.3, 2.7, 3.6 Unit 3: TMM 2.1, TMM 3.4 Unit 5: 2.5 SAB 68	2. Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. (e.g., Express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.)					
Analyze patterns and relationships.						
Unit 5: 1.6, 1.7, 2.3, 2.4, 2.6, 2.7 Unit 8: 2.3, 2.4, 2.5 SAB 307	3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. (e.g., Given the rule “Add 3” and the starting number 0 and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.)					
Number and Operations in Base Ten						
Understand the place value system.						
Unit 6: 1.2, 1.4, 1.6 Unit 7: 3.1, 3.6	4. Recognize 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 1/10 of what it represents in the place to its left.					

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Unit 1: 2.3, 2.4, 2.5, 3.2, 3.6 Unit 4: 1.4, 2.1, 2.2, 3.1, 3.4, 3.5 Unit 7: 3.1, 3.6 SAB 229, 254, 260, 303, 315, 487, 488, 494, 506	5. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, 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.							
Unit 6: 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 2.5, 2.6, 2.7, 2.8, 2.9 Unit 7: TMM 1.1, TMM 1.2, TMM 1.3, TMM 1.4, TMM 2.1, TMM 2.2, TMM 2.3, TMM 2.4, TMM 3.1, TMM 3.2, TMM 3.3, TMM 3.4 SAB 350-352, 353, 357k, 358, 366-367, 369, 383, 3897, 415, 416, 430, 462, 483 a. Unit 6: 1.1, 1.2, 1.4, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8, 2.9 Unit 7: 1.1, 1.3, 1.4, 1.9, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4 b. Unit 6: 1.3, 1.4, 1.5, 1.7, 1.8, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9 Unit 7: 1.1, 1.2, 1.3, 1.4	6. Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names and expanded form (e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$). b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$ and $<$ symbols to record the results of comparisons.							

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Unit 6: 1.6, TMM 1.7, TMM 1.8, TMM 2.1, TMM 2.2, TMM 2.3, TMM 2.4, TMM 2.5, TMM 2.6, Unit 7: 1.1, 1.2, 1.3, 1.4, TMM 2.1, TMM 2.2, TMM 2.3, TMM 2.4, TMM 3.1, TMM 3.2, TMM 3.3, TMM 3.4 SAB 379, 380, 384, 388	7. Use place value understanding to round decimals to any place.							
Perform operations with multi-digit whole numbers and with decimals to hundredths.								
Unit 1: 2.1, 2.2, 2.4, 2.5, 2.6, 2.7 Unit 3: TMM 2.1, TMM 2.2 Unit 4: 1.1, 1.2, 1.3, 1.4, 1.5, 3.1, 3.2, 3.3, 3.4, 3.5 Unit 5: TMM 2.1, TMM 2.2, TMM 2.3 Unit 8: 2.3 SAB 27, 29-30, 31, 37, 44, 69-70, 204, 207, 213, 214, 215, 217-218, 221, 223, 240, 254, 260, 262-263, 264, 267, 276, 294, 323, 343, 368, 373	8. Fluently multiply multi-digit whole numbers using the standard algorithm.							
Unit 1: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 Unit 4: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5 SAB 49, 50, 54, 57, 63, 67, 69-70, 227, 228, 235-237, 243-244, 247, 250, 251, 254, 260, 263-263, 264, 267, 277, 299, 323, 344, 354, 482	9. Find whole-number quotients of whole numbers 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. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.							

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Unit 6: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 Unit 7: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11 Unit 8: 2.2 SAB 395-396, 398-399, 400, 403-404, 406, 407-409, 411, 414, 417, 423, 489, 491-492, 493, 495, 496, 497, 498, 499, 500, 501, 503, 505, 508, 509, 510, 511, 514, 521, 566	10. Add, subtract, multiply and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between related operations, relate the strategy to a written method and explain the reasoning used.							
Number and Operations - Fractions								
Use equivalent fractions as a strategy to add and subtract fractions.								
Unit 3: 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 Unit 5: TMM 1.1, TMM 1.2, TMM 1.3, TMM 1.4 Unit 8: 2.3 SAB 156-157, 161, 163, 164, 169, 173, 177, 183-184, 189, 203, 222	11. Add and subtract fractions with unlike denominators, including mixed numbers, by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., $2/3 + 5/4 = 8/12 + 15/12 = 23/12$). Instructional Note: In general, $a/b + c/d = (ad + bc)/bd$.							
Unit 3: 2.3, 2.7, 3.1, 3.3, 3.4, 3.5, 3.6 SAB 166, 173, 174, 178, 18838-184, 192-193, 203, 222	12. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g., recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$).							

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Apply and extend previous understandings of multiplication and division to multiply and divide fractions.								
Unit 7: 2.1, 2.2, 2.3, 2.4 SAB 473-474, 475, 476	13. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem. (e.g., Interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?)							
Unit 7: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 Unit 8: 2.5 SAB 421-422, 424, 427-429, 431, 433-434, 442, 456, 457-458, 459 a. Unit 7: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 3.9, 3.10, 3.11 Unit 8: 1.4, 2.5 b. Unit 7: 1.7, 1.8, 1.11 Unit 8: 2.5	14. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. (e.g., Use a visual fraction model to show $(2/3) \times 4 = 8/3$ and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$.) Instructional Note: In general, $(a/b) \times (c/d) = ac/bd$. b. Find the area of a rectangle with fractional side lengths by tiling it 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.							

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<p>Unit 7: 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, TMM 1.9, TMM 1.10, TMM 1.11 SAB 443-445, 446, 449-450, 452</p> <p>a. Unit 7: 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11</p> <p>b. Unit 7: 1.3, 1.4, 1.5</p>	<p>15. Interpret multiplication as scaling (resizing), by:</p> <p>a. Comparing 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.</p> <p>b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (nxa)/(nxb)$ to the effect of multiplying a/b by 1.</p>				
<p>Unit 7: 1.1, 1.2, 1.3, 1.4, 1.7, 1.8 Unit 8: 2.3, 2.5 SAB 439-440, 442, 453-454, 455, 467, 471, 479</p>	<p>16. Solve real-world problems involving multiplication of fractions and mixed numbers by using visual fraction models or equations to represent the problem.</p>				
<p>Unit 7: 1.9, 1.10, 1.11 SAB 460-461, 463, 465-466, 468, 469-470, 471, 561</p> <p>a. Unit 7: 1.10, 1.11, 2.1, 2.4</p>	<p>17. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. Instructional Note: Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division, but division of a fraction by a fraction is not a requirement at this grade.</p> <p>a. Interpret division of a unit fraction by a non-zero whole number and compute such quotients. (e.g., Create a story context for $(1/3) \div 4$ and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.)</p>				

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<p>b. Unit 7: 1.9, 1.11, 2.1, 2.4</p> <p>c. Unit 7: 1.9, 1.10, 1.11, 3.9, 3.10, 3.11</p>	<p>b. Interpret division of a whole number by a unit fraction and compute such quotients. (e.g., Create a story context for $4 \div (1/5)$ and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.)</p> <p>c. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions by using visual fraction models and equations to represent the problem. (e.g., How much chocolate will each person get if 3 people share $1/2$ lb. of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?)</p>							
Measurement and Data								
Convert like measurement units within a given measurement system.								
<p>Unit 7: 3.8, 3.9, 3.10, 3.11 SAB 513, 515, 517, 520, 523, 524-525, 527, 549, 560, 569</p>	18. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real-world problems.							
Represent and interpret data.								
<p>Unit 3: 3.4, 3.5, 3.6 SAB 190-191</p>	19. Make a line plot to display a data set of measurements in fractions of a unit ($1/2, 1/4, 1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots. (e.g., Given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally).							

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Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.								
Unit 2: 1.1, 1.2, 1.4, 2.1 SAB 75-76, 77, 78, 83, 86, 93 a. Unit 2: 1.1, 1.2, 1.5, 2.1, 2.4 b. Unit 2: 1.1, 1.2, 1.5, 2.1, 2.4	20. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using b unit cubes is said to have a volume of b cubic units.							
Unit 2: 1.1, 1.2, 2.1, 2.2, 2.3, 2.4 SAB 77, 78, 83, 86, 93, 102	21. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.							
Unit 2: 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 2.3, 2.4 SAB 83, 86, 93, 97, 100-101, 111, 117, 121, 159, 162, 172, 175 a. Unit 2: 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.4 b. Unit 2: 1.2, 1.5, 1.6, 2.1, 2.3, 2.4	22. Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. a. 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, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication). b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems.							

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c. Unit 2: 1.6, 1.7, 1.8, 2.4	c. Recognize volume as additive and 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.							
Geometry								
Graph points on the coordinate plane to solve real-world and mathematical problems.								
Unit 5: 1.1, 1.2, 1.3, 1.4, 1.5, 2.3, 2.4, 2.5 SAB 287-288, 291-293, 295-297, 301-302, 304-306, 316-318, 319-321, 325-327, 328-330, 331, 335	23. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines, the origin, arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis and the second number indicates how far to travel in the direction of the second 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).							
Unit 5: 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.3, 2.4, 2.5, 2.6, 2.7 SAB 287-288, 291-293, 295-297, 301-302, 304-306, 316-318, 319-321, 325-327, 328-330, 333-334, 337-339, 340-342, 345-346	24. Represent real-world mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.							
Classify two-dimensional figures into categories based on their properties.								
Unit 8: 1.1, 1.2, 1.3, 1.4, 1.5 SAB 533-534, 536, 539-540, 541, 545-548, 550, 552-553, 555, 557, 558, 565	25. Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category (e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles).							
Unit 8: 1.1, 1.2, 1.3, 1.4, 1.5 SAB 533-534, 536, 539-540, 542, 545-548, 550, 552-553, 555, 557, 558, 565	26. Classify two-dimensional figures in a hierarchy based on properties.							