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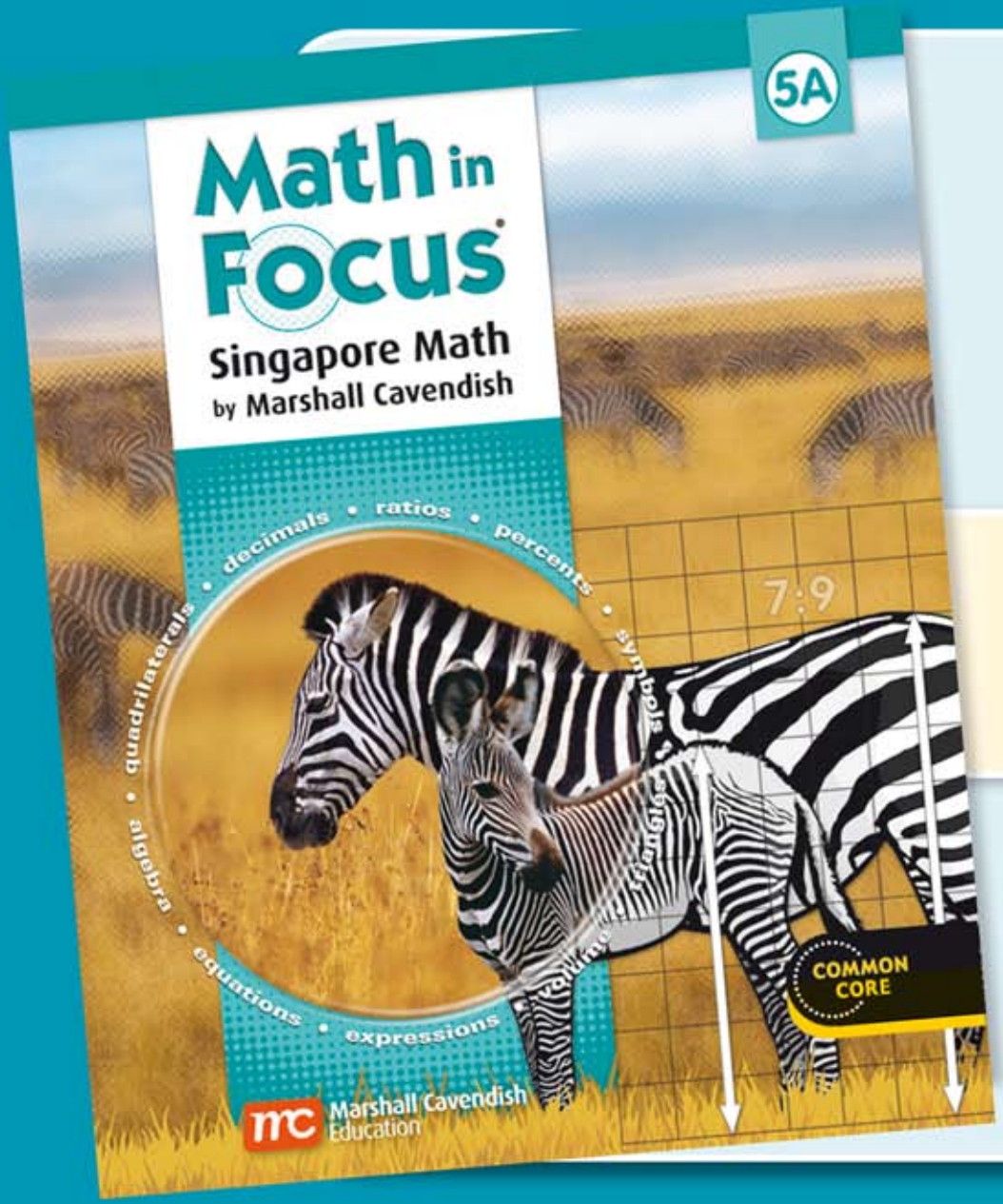

Correlation to the Common Core State Standards for Mathematics

Math in Focus © 2013 Grade 5

COMMON CORE

Correlation of *Math in Focus*® to the Common Core State Standards

Attached are grade level correlations showing how closely ***Math in Focus*®** covers the skills and concepts outlined in the Common Core State Standards. But it is equally important to recognize the parallel assumptions behind the Common Core and ***Math in Focus*®**. In fact, the Singapore curriculum was one of the 15 national curriculums examined by the committee and had a particularly important impact on the writers because Singapore is the top performing country in the world and the material is in English.

> *Overall, the CCSS are well aligned to Singapore's Mathematics Syllabus.*
> *Policymakers can be assured that in adopting the CCSS, they will be setting learning expectations for students that are similar to those set by Singapore in terms of rigor, coherence and focus. – Achieve (achieve.org/CCSSandSingapore)*
> *—Achieve*, (achieve.org/CCSSandSingapore)*

Here are the parallel assumptions:

1, Curriculum must be focused and coherent:

Common Core State Standards:

> *For over a decade, research studies of mathematics education in high performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country.*
> *(Common Core State Standards for Mathematics, 3)*

***Math in Focus*®** is organized to teach fewer topics in each grade but to teach them thoroughly. When a concept appears in a subsequent grade level, it is always at a higher level. For instance, first grade does not address fractions, second grade covers what a fraction is, third grade covers equivalent fractions and fractions of a set, fourth grade deals with mixed fractions, and addition of simple fractions, while fifth grade teaches addition, subtraction, and multiplication of fractions as well as division of fractions by whole numbers. This is the coherence and focus that the standards call for.

2. Teach to mastery

Common Core State Standards:

> *In grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.*
> *(Common Core State Standards for Mathematics, 17)*
>
> *In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100;(2)developing understanding of fractions, especially unit fractions…;(3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing tw0-dimensional shapes*
> *(Common Core State Standards for Mathematics, 21)*

Math in Focus® has the identical structure. Rather than repeating topics, students master them in a grade level, and subsequent grades develop them to more advanced levels. Adding another digit is NOT an example. Moving from addition/subtraction in second grade to multiplication/division in third grade is such an example. Students continue to practice all the operations with whole numbers in every grade in the context of problem solving.

3. **Focus on number, geometry and measurement in elementary grades**

Common Core State Standards:

> *Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics*.
> *(Common Core State Standards for Mathematics, 3)*

Math in Focus® emphasizes number and operations in every grade K-5 just as recommended in the CCSS. The textbook is divided into two books roughly a semester each. Approximately 75% of Book A is devoted to number and operations and 60-70% of Book B to geometry and measurement where the number concepts are practiced. The key number topics are in the beginning of the school year so students have a whole year to master them.

4. Organize content by big ideas such as place value

Common Core State Standards:

> *These Standards endeavor to follow such a design, not only by stressing conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value or the properties of operations to structure those ideas. (Common Core State Standards for Mathematics, 4)*

Math in Focus® is organized around place value and the properties of operations. The first chapter of each grade level from second to fifth begins with place value. In first grade, students learn the teen numbers and math facts through place value. In all the grades, operations are taught with place value materials so students understand how the standard algorithms work. Even the mental math that is taught uses understanding of place value to model how mental arithmetic can be understood and done.

5. Curriculum must include both conceptual understanding and procedural fluency.

Common Core State Standards:

> *The Standards for Mathematical Content are a balanced combination of procedure and understanding (Common Core State Standards for Mathematics, 8)*

Math in Focus® is built around the Singapore Ministry of Education's famous pentagon that emphasizes conceptual understanding, skill development, strategies for solving problems, attitudes towards math, and metacognition that enable students to become excellent problem solvers. The highly visual nature of the text and the consistent concrete to visual to abstract approach enables all students to both understand how procedures work and to fluently apply them to solve problems.

6. Mathematics is about reasoning

Common Core State Standards:

> *These Standards define what students should understand and be able to do in their study of mathematics....One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity.*
> *(Common Core State Standards for Mathematics, 4)*

Math in Focus® is famous for its model drawing to solve problems and to enable students to justify their solutions. In addition to journal questions and other explicit opportunities to explain their thinking, students are systematically taught to use visual diagrams to represent mathematical relationships in such a way as to accurately solve problems, but also to explain their thinking.

Works Cited:

1. "Common Core State Standards For Mathematics" *Common Core State Standards Initiative | Home*. 2 June 2010. Web. 26 July 2010. <http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf>.

Houghton Mifflin Harcourt Specialized Curriculum
Math in Focus®, Grade 5 ©2013
Common Core Edition

correlated to the

Common Core State Standards for Mathematics
Grade 5

Standards	Descriptor	Page Citations
Standards for Mathematical Practice		
MP.1 Make sense of problems and persevere in solving them. **How *Math in Focus*® Aligns:** *Math in Focus*® is built around the Singapore Ministry of Education's mathematics framework pentagon, which places mathematical problem solving at the core of the curriculum. Encircling the pentagon are the skills and knowledge needed to develop successful problem solvers, with concepts, skills, and processes building a foundation for attitudes and metacognition. *Math in Focus*® is based on the premise that in order for students to persevere and solve both routine and non-routine problems, they need to be given tools that they can use consistently and successfully. They need to understand both the *how* and the *why* of math so that they can self-monitor and become empowered problem solvers. This in turn spurs positive attitudes that allow students to solidify their learning and enjoy mathematics. *Math in Focus*® teaches content through a problem solving perspective. Strong emphasis is placed on the concrete-to-pictorial-to-abstract progress to solve and master problems. This leads to strong conceptual understanding. Problem solving is embedded throughout the program		*This standard is covered throughout the program; the following are examples.* **SE/TE-5A:** 3-4, 14, 15, 27-32, 34-35, 44, 46, 81, 94-95, 98-102, 103-108, 109, 110, 113, 122-123, 125, 129, 143, 151-153, 154-155, 159, 162, 169-174, 177-178, 179, 183-184, 185-187, 189-197, 199, 216, 230, 232-233, 237, 238-239, 241, 245, 262, 284-285, 286-289, 291, 293-295, 304-310, 311, 312, 315 **Workbook 5A:** 35B, 35C, 35D, 102A, 102B, 109A, 154C, 155A, 199A, 241A, 262A, 262B, 311B, 315G **SE/TE-5B:** 25, 35, 51-52, 66, 68-77, 81, 82-83, 115, 149, 153, 165-166, 179, 203, 223, 243-244, 251, 261, 273, 296 **Workbook 5B:** 25A, 74A, 81A, 95A, 115B, 153A, 179A, 223B, 297C

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Standards	Descriptor	Page Citations
MP.2 Reason abstractly and quantitatively. **How *Math in Focus*® Aligns:** *Math in Focus*'® concrete-pictorial-abstract progression helps students effectively contextualize and decontextualize situations by developing a deep mastery of concepts. Each topic is approached with the expectation that students will understand both *how* it works, and also *why*. Students start by experiencing the concept through hands-on manipulative use. Then, they must translate what they learned in the concrete stage into a visual representation of the concept. Finally, once they have gained a strong understanding, they are able to represent the concept abstractly. Once students reach the abstract stage, they have had enough exposure to the concept and they are able to manipulate it and apply it in multiple contexts. They are also able to extend and make inferences; this prepares them for success in more advanced levels of mathematics. They are able to both use the symbols and also understand why they work, which allows students to relate them to other situations and apply them effectively.		*This standard is covered throughout the program; the following are examples.* **SE/TE-5A:** 35, 65, 67-69, 98, 109, 112, 122, 127, 131-133, 158, 199, 230-235, 238-239, 243-245, 262 **Workbook 5A:** 69A, 69B, 136A, 235A, 262A **SE/TE-5B:** 59, 69-74, 82-83, 125, 133-135, 144-145, 151-152, 154-156, 163-168, 169-173, 175-178, 179, 180-181, 184, 191-194, 195-204, 223, 251 **Workbook 5B:** 74A, 168A, 168B, 173A, 178A, 178B, 179A, 194A, 204A, 204B, 223B, 228B, 228C, 228D, 297C

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Standards	Descriptor	Page Citations	
MP. 3 Construct viable arguments and critique the reasoning of others. **How *Math in Focus*® Aligns:** As seen on the Singapore Mathematics Framework pentagon, metacognition is a foundational part of the Singapore curriculum. Students are taught to self-monitor, so they can determine whether or not their solutions make sense. Journal questions and other opportunities to explain their thinking are found throughout the program. Students are systematically taught to use visual diagrams to represent mathematical relationships in such a way as to not only accurately solve problems, but also to justify their answers. Chapters conclude with a Put on Your Thinking Cap! problem. This is a comprehensive opportunity for students to apply concepts and present viable arguments. Games, explorations, and hands-on activities are also strategically placed in chapters when students are learning concepts. During these collaborative experiences, students interact with one another to construct viable arguments and critique the reasoning of others in a constructive manner. In addition, thought bubbles provide tutorial guidance throughout the entire Student Book. These scaffolded dialogues help students articulate concepts, check for understanding, analyze, justify conclusions, and self-regulate if necessary.		**SE/TE-5A:** **SE/TE-5B:**	14, 15, 81, 94, 95, 125, 129, 143, 168, 179, 216, 262, 291, 311 66, 149, 203, 243, 244, 261, 273

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Standards	Descriptor	Page Citations
MP.4 Model with mathematics. **How *Math in Focus*® Aligns:** *Math in Focus*® follows a concrete-pictorial-abstract progression, introducing concepts first with physical manipulatives or objects, then moving to pictorial representation, and finally on to abstract symbols. A number of models are found throughout the program that support the pictorial stage of learning. *Math in Focus*® places a strong emphasis on number and number relationships, using place-value manipulatives and place-value charts to model concepts consistently throughout the program. In all grades, operations are modeled with place-value materials so students understand how the standard algorithms work. Even the mental math instruction uses understanding of place value to model how mental arithmetic can be understood and done. These place-value models build throughout the program to cover increasingly complex concepts. Singapore math is also known for its use of model drawing, often called "bar modeling" in the U.S. Model drawing is a systematic method of representing word problems and number relationships that is explicitly taught beginning in Grade 2 and extends all the way to secondary school. Students are taught to use rectangular "bars" to represent the relationship between known and unknown numerical quantities and to solve problems related to these quantities. This gives students the tools to develop mastery and tackle problems as they become increasingly more complex.		*This standard is covered throughout the program; the following are examples.* **SE/TE-5A:** 47-50, 52, 55, 57, 60, 71, 73, 75, 78, 98-100, 102, 104, 108, 113, 133-135, 167, 188, 216, 224-225, 254, 257, 259, 281, 300 **Workbook 5A:** 50A, 63B, 102A, 102B, 108A, 262B **SE/TE-5B:** 36-39, 43-44, 46-47, 51, 53-55, 60-61, 63-64, 128, 136, 142, 167, 172, 175, 206, 212, 241, 260-261, 263-266, 282-283 **Workbook 5B:** 50A, 67A

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Standards	Descriptor	Page Citations
MP.5 Use appropriate tools strategically. **How *Math in Focus*® Aligns:** *Math in Focus*® helps students explore the different mathematical tools that are available to them. New concepts are introduced using concrete objects, which help students break down concepts to develop mastery. They learn how to use these manipulatives to attain a better understanding of the problem and solve it appropriately. *Math in Focus*® includes representative pictures and icons as well as thought bubbles that model the thought processes students should use with the tools. Several examples are listed below. Additional tools referenced and used in the program include clocks, money, dot paper, place-value charts, geometric tools, and figures.		*This standard is covered throughout the program; the following are examples.* **SE/TE-5A:** 47, 48-50, 55, 60, 73, 78, 98-100, 102, 104, 108, 113 **Workbook 5A:** 50A, 63B, 102A, 102B, 108A262B **SE/TE-5B:** 159, 162-164, 167, 170, 172, 175
MP.6 Attend to precision. **How *Math in Focus*® Aligns:** As seen in the Singapore Mathematics Framework, metacognition, or the ability to monitor one's own thinking, is key in Singapore math. This is modeled for students throughout *Math in Focus*® through the use of thought bubbles, journal writing, and prompts to explain reasoning. When students are taught to monitor their own thinking, they are better able to attend to precision, as they consistently ask themselves, "does this make sense?" This questioning requires students to be able to understand and explain their reasoning to others, as well as catch mistakes early on and identify when incorrect labels or units have been used. Additionally, precise language is an important aspect of *Math in Focus*®. Students attend to the precision of language with terms like factor, quotient, difference, and capacity.		*This standard is covered throughout the program; the following are examples.* **SE/TE-5A:** 11, 14, 15, 47, 49, 50, 53, 55, 58, 60, 72, 73, 76, 78, 80, 81, 94-95, 123, 125, 128, 129, 133, 135, 143, 167, 168, 179, 188, 216, 224-225, 257-259, 262, 281, 291, 300, 311 **SE/TE-5B:** 14, 44, 46, 49, 61, 64, 66, 79, 99, 105, 113, 128, 136, 142, 148, 149, 167, 172, 175, 196, 203, 206, 212-214, 220, 241, 243, 244, 249, 261, 273, 282

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Standards	Descriptor	Page Citations
MP.7 Look for and make use of structure. **How *Math in Focus*® Aligns:** The inherent pedagogy of Singapore math allows students to look for, and make use of, structure. Place value is one of the underlying principles in *Math in Focus*®. Concepts in the program start simple and grow in complexity throughout the chapter, year, and grade. This helps students master the structure of a given skill, see its utility, and advance to higher levels. Many of the models in the program, particularly number bonds and bar models, allow students to easily see patterns within concepts and make inferences. As students progress through grade levels, this level of structure becomes more advanced.		*This standard is covered throughout the program; the following are examples.* **SE/TE-5A:** 90-95, 99-102, 103-105, 109, 113, 153, 184, 191-194, 198, 222 **Workbook 5A:** 95A, 95B, 102A, 102B, 108A, 108B, 109A, 113D, 113E, 153A, 153C, 153D, 184A, 315E, 315F, 315H **SE/TE-5B:** 77-78 **Workbook 5B:** 80A, 80B
MP.8 Look for and express regularity in repeated reasoning. **How *Math in Focus*® Aligns:** A strong foundation in place value, combined with modeling tools such as bar modeling and number bonds, gives students the foundation they need to look for and express regularity in repeated reasoning. Operations are taught with place value materials so students understand how the standard algorithms work in all grades. Even the mental math instruction uses understanding of place value to model how mental arithmetic can be understood and done. This allows students to learn shortcuts for solving problems and understand why they work. Additionally, because students are given consistent tools for solving problems, they have the opportunity to see the similarities in how different problems are solved and understand efficient means for solving them. Throughout the program, students see regularity with the reasoning and patterns between the four key operations. Students continually evaluate the reasonableness of solutions throughout the program; the consistent models for solving, checking, and self-regulation help them validate their answers.		**SE/TE-5A:** 35, 52-53, 57-58, 71-72, 75-76, 81, 109, 199, 262

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Standards	Descriptor	Page Citations
Standards for Mathematical Content		
5.OA	**Operations and Algebraic Thinking**	
Write and interpret numerical expressions.		
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	**SE/TE-5A:** 55, 60-63, 64-66, 68, 73-74, 77-80, 92-95, 109, 113, 216-217, 227-228, 230, 235, 237-240, 242, 245 **Workbook 5A:** 63A, 81A, 81B, 95B, 108A, 108B, 109A, 113D, 225A, 240A, 241A, 315B, 315C, 315F, 315H **SE/TE-5A:** **Common Core Focus Lesson Appendix Chapter 2, Lesson 6.a**
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	**SE/TE-5A:** 90-93, 95, 99-101, 111, 113, 208-210 **Workbook 5A:** 95A, 95B, 218A, 315E
Analyze patterns and relationships.		
5.OA.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.	**SE/TE-5A:** 51-54, 56-59, 70-72, 74-77, 81 **SE/TE-5B:** 131- 135, 136, 138, 156 **Workbook 5B:** 138A, 153A

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Standards	Descriptor	Page Citations
5.NBT	**Number and Operations in Base Ten**	
Understand the place value system.		
5.NBT.1	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.	**SE/TE-5A:** 5-8, 9-10, 12-13, 16, 18, 20-21, 36, 38-39, 52-53, 57-58, 71-72, 75-76, 81 **Workbook 5A:** 15A, 15B, 19A, 24A **SE/TE-5B:** 7-14, 16-17, 18-19, 20-22, 23, 27-29, 36-39, 42, 43-44, 46-47, 51, 53-58, 60-61, 63-64 **Workbook 5B:** 17A, 22A, 42A, 50A, 59A, 59B, 67A
5.NBT.2	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.	**SE/TE-5A:** 51-54, 56-59, 70-72, 74-77, 81 **SE/TE-5B:** 43-48, 50A, 60-65, 67A, 82-83, 118C **Workbook 5B:** 50A, 67A, 118C **SE/TE-5A:** **Common Core Focus Lesson Appendix Chapter 2, Lesson 2.a;** **SE/TE-5B:** **Common Core Focus Lesson Appendix Chapter 9, Lesson 2.a**

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Standards	Descriptor	Page Citations
5.NBT.3	Read, write, and compare decimals to thousandths.	
5.NBT.3.a	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.	**SE/TE-5B:** 7-17, 17A, 23-25, 26-29 **Workbook 5B:** 17A, 25A, 25B, 118B
5.NBT.3.b	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**SE/TE-5B:** 18-22, 27 **Workbook 5B:** 22A, 118B
5.NBT.4	Use place value understanding to round decimals to any place.	**SE/TE-5B:** 20-22, 27, 29, 56-58, 68-74, 75-80, 82-83 **Workbook 5B:** 22A, 25B, 74A, 80A, 118B, 118C

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Standards	Descriptor	Page Citations	
Perform operations with multi-digit whole numbers and with decimals to hundredths.			
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	**SE/TE-5A:**	49, 51-63, 64-69, 91-95, 98-102, 103-104, 108, 109, 110, 112-113
		Workbook 5A:	50A, 63A, 63B, 69A, 69B, 95A, 95B, 102A, 102B, 108A, 108B, 109A, 113C, 113D, 113E
		SE/TE-5B:	269-270, 272, 274, 287-295, 299, 301-302,
		Workbook 5B:	247A, 297, 297A, 297B, 297C, 302B, 302C, 302D, 302E, 302G
5.NBT.6	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.	**SE/TE-5A:**	50, 70, 72-74, 77-81, 82-89, 92-94, 96-97, 100, 102, 104-105, 108, 111-113
		Workbook 5A:	50A, 81A, 81B, 89A, 95A, 95B, 102A, 108B, 113C, 113E, 315E, 315G
5.NBT.7	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 addition and subtraction; relate the strategy to a written method and explain the reasoning used.	**SE/TE-5B:**	13, 17, 26, 36-42, 43-50, 51-59, 60-67, 68-74, 75-80, 81, 82-84
		Workbook 5B:	17A, 25B, 42A, 50A, 59A, 59B, 67A, 74A, 80A, 80B, 81A, 118B, 118C, 302G

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Standards	Descriptor	Page Citations
5.NF	**Number and Operations - Fractions**	
Use equivalent fractions as a strategy to add and subtract fractions.		
5.NF.1	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.	**SE/TE-5A:** 122-126, 127-130, 140-144, 145-149, 151-153, 154, 156, 158-159 **Workbook 5A:** 126A, 126B, 130A, 144A, 149A, 153A, 153B, 153C, 153D, 155A, 203B, 203C, 203D, 315E, 315F, 315G
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., 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.	**SE/TE-5A:** 122, 127, 129, 131-132, 134-135, 139, 140-141, 145-146, 150-153, 154-155, 159 **Workbook 5A:** 130A, 139A, 153A, 153B, 153C, 153D, 155A, 203D, 315F, 315G

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Standards	Descriptor	Page Citations
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.		
5.NF.3	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, e.g., by using visual fraction models or equations to represent the problem.	**SE/TE-5A:** 131-136, 138, 150, 157, 159 **Workbook 5A:** 136A, 139A, 153A, 153B, 203B
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	
5.NF.4.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 $a \times q \div b$.	**SE/TE-5A:** 165-168, 169-174, 175-176, 177-180, 181-184, 191, 193-194, 196, 198, 200-203 **Workbook 5A:** 168A, 174A, 176A, 180A, 184A, 198A, 199A, 203C, 203D, 203E, 315E, 315F
5.NF.4.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.	**SE/TE-5A:** 165, 175, 203 **Workbook 5A:** 168A, 176A **SE/TE-5A:** **Common Core Focus Lesson Appendix Chapter 6, Lesson 6.0**

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Standards	Descriptor	Page Citations
Perform operations with multi-digit whole numbers and with decimals to hundredths.		
5.NF.5	Interpret multiplication as scaling (resizing), by:	
5.NF.5.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.	**SE/TE-5A:** 168, 280-281, 299, 301, 304, 313 **Workbook 5A:** 282, 301A **SE/TE-5A:** **Common Core Focus Lesson Appendix Chapter 4, Lesson 4.0**
5.NF.5.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 $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	**SE/TE-5A:** 165-168, 175-176, 177-180 **Workbook 5A:** 168A, 176A **SE/TE-5B:** 36-50 **Workbook 5B:** 42A, 50A
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	**SE/TE-5A:** 165, 167, 169-174, 177, 181-184, 192-197, 203 **Workbook 5A:** 174A, 184A, 199A, 203D, 203E

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Standards	Descriptor	Page Citations
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	
5.NF.7.a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.	**SE/TE-5A:** 185-189, 196-198, 201, 203 **Workbook 5A:** 189A, 199A, 203C, 203D, 203E, 315E
5.NF.7.b	Interpret division of a whole number by a unit fraction, and compute such quotients.	**SE/TE-5A:** **Common Core Focus Lesson Appendix Chapter 4, Lesson 6.a** This standard is also met in Course 1.
5.NF.7.c	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.	**SE/TE-5A:** 185-189, 196-198, 203 **Workbook 5A:** 189A, 199A, 203D, 203E **SE/TE-5A:** **Common Core Focus Lesson Appendix Chapter 4, Lesson 7.a**

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Standards	Descriptor	Page Citations
5.MD	**Measurement and Data**	
Convert like measurement units within a given measurement system.		
5.MD.1	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.	**SE/TE-5B:** 134, 290-296, 299, 301-302 **Workbook 5B:** 153A, 228B, 228D, 297A, 297B, 297C, 302C, 302D, 302E
Represent and interpret data.		
5.MD.2	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.	*Line Plots are covered to mastery in grades 3 and 4, opportunity to review can be found on page:* **SE/TE-5B:** 153 **SE/TE-5B:** **Common Core Focus Lesson Appendix Chapter 11, Lesson 1.a**

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Standards	Descriptor	Page Citations
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.		
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	
5.MD.3.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.	**SE/TE-5B:** 277-285, 287-290, 297, 299-301 **Workbook 5B:** 285A, 297A, 302C
5.MD.3.b	A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.	**SE/TE-5B:** 277-285, 287-288, 297, 299-300 **Workbook 5B:** 285A, 302C
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	**SE/TE-5B:** 277-285, 287-288, 297, 299-300 **Workbook 5B:** 285A, 302C

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Standards	Descriptor	Page Citations
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	
5.MD.5.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.	**SE/TE-5B:** 277, 279, 280-283, 285, 287-288, 299 **Workbook 5B:** 285A, 302C **SE/TE-5B:** **Common Core Focus Lesson Appendix Chapter 15, Lesson 5.a**
5.MD.5.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.	**SE/TE-5B:** 286-297, 297A, 297B, 297C, 299, 301-302 **Workbook 5B:** 297A, 297B, 297C, 302C, 302D, 302G
5.MD.5.c	Recognize volume as additive. 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.	**SE/TE-5B:** 278, 279, 281, 282, 284 **SE/TE-5B:** **Common Core Focus Lesson Appendix Chapter 15, Lesson 5.b**

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Standards	Descriptor	Page Citations
5.G	**Geometry**	
Graph points on the coordinate plane to solve real-world and mathematical problems.		
5.G.1	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).	**SE/TE-5B:** 131-138, 156 **Workbook 5B:** 138A, 153A, 228B, 228D, 302E
5.G.2	Represent real world and 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.	**SE/TE-5B:** 131-138, 156 **Workbook 5B:** 138A, 153A, 228B, 228D, 302E

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Standards	Descriptor	Page Citations
Classify two-dimensional figures into categories based on their properties.		
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	**SE/TE-5A:** 257 **SE/TE-5B:** 186-190, 195-199, 201-204, 211-214, 216-223, 224-228 **Workbook 5B:** 190A, 204A, 204B, 223A, 223B, 228C, 228D, 302F
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.	**SE/TE-5A:** 257 **SE/TE-5B:** 186-190, 195-199, 201-204, 211-214, 216-223, 224-228 **Workbook 5B:** 190A, 204A, 204B, 223A, 223B, 228C, 228D, 302F

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