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SUGGESTED

**INSTRUCTIONAL**

**PLANNING GUIDE**

*for the Mississippi College- and Career-Readiness Standards*

**q Mathematics**

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| **Grade 5** |

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**INTRODUCTION**

The unprecedented, nationwide school closures in the spring of 2020 due to the COVID-19 pandemic have created a shift in how districts plan for school re-entry. Instead of the traditional brick-and-mortar planning, administrators are now identifying models that will support a variety of instructional delivery scenarios as they plan for school reopening. The traditional methods of planning and delivery are nearly impossible to implement as a stand-alone model; instead, innovative educators are developing and identifying strategies and resources to support a variety of distance learning scenarios as part of their plans. When using new models of delivery, it is important to recognize that the traditional approach to remediation—providing work better suited for earlier grades—may be insufficient. Instead, the conventional approach to remediation will likely compound the problem educators are trying to correct. According to a 2018 study, [The Opportunity Myth[[1]](#footnote-2)](https://tntp.org/assets/documents/TNTP_The-Opportunity-Myth_Web.pdf), the approach of “meeting students where they are”, while often well-intended, only widens the achievement gap. Instead of remediation, teachers and administrators are encouraged to look toward acceleration methods to support student growth and close the gaps.

**PURPOSE**

The purpose of the *Suggested Mississippi College- and Career-Readiness Standards Instructional Planning Guides* is to provide a *SUGGESTED* guide to assist teachers in planning rigorous, coherent lessons that focus on the critical content of each grade level. Providing curriculum guidance through intentional standard grouping and consideration for the time needed to address different objectives, should encourage consistent instruction that fully aligns to the Mississippi College- and Career-Readiness Standards. The use of this guide can also foster collaborative planning across schools and districts throughout the state.

**DEVELOPMENT**

The following planning and subsequent grouping of standards were determined through a collaborative process among state-level content specialists. By connecting standards through common conceptual understandings and relationships, the expectation is that conceptual connections will promote a cohesive process and avoid the teaching of standards in isolation. Additionally, it promotes a deeper understanding and a more authentic acquisition of mathematical knowledge and skills. The Standards for Mathematical Practices (SMPs) presented are those suggested to be highlighted within the respective standard; however, this does not exclude the inclusion of other SMPs. The standards determined as “**priority**” have been bolded and are standards identified as critical to the mastery of other standards. A standard’s “**priority**” status does *NOT* have a direct correlation with test item frequency. Additionally, some standards may appear multiple times throughout the course with a portion of the standard highlighted to depict that only that portion of the standard is to be taught within that unit.

**RESOURCES FOR CONSIDERATION**

The resources listed below may be referenced to support classroom teachers in the development of lesson plans and instruction at the local level. This list is not meant to be exhaustive, rather it represents consultative resources that align with the Units/Themes provided in the Instructional Planning Guides. Educators are encouraged to use these resources in addition to those curriculum materials that meet the needs of the students they serve.

| High-Quality Instructional Materials (HQIM) | Instruction and Planning Resources | Standards for Mathematical Practices (SMPs) | AssessmentResources | Professional Development |
| --- | --- | --- | --- | --- |
| * [MS HQIM Defined](https://mdek12.org/HQIM)
* [MS Adopted HQIM (Textbooks)](https://www.mdek12.org/caravan2019)
* [enVision Mathematics 2020 Correlation to the MS CCRS K-5](https://assets.savvas.com/correlations/MS_2016_enVMS2020_K-5.pdf?_ga=2.245827716.1280125487.1593455317-1093477658.1593035292)
* [MHE My Math Learning Solution](https://s3.amazonaws.com/ecommerce-prod.mheducation.com/unitas/school/explore/sites/mymath/mcgraw-hill-my-math-learning-solution.pdf)
* [Great Minds (Eureka Math) Teacher Resource Pack](https://eurekamath.greatminds.org/teacher-resource-pack)
* [Great Minds Alignment to MSCCRS](https://greatminds.org/resources/products/mississippi-standards-alignment-study)
 | * [Achieve the Core Coherence Map-5](https://achievethecore.org/coherence-map/5)[th](https://achievethecore.org/coherence-map/5) [Grade Math](https://achievethecore.org/coherence-map/5)
* [Standards Dependency and Flow View](http://jeffbaumes.github.io/standards/)
* *Scaffolding Instruction for ELLs*
* [Achieve the Core CCR Shifts in Mathematics](https://achievethecore.org/content/upload/SAP_ShiftsAtAGlance_02.pdf)
* [Standards Progressions for Mathematics Progression Documents](http://ime.math.arizona.edu/progressions/)
* [SFUSD Manipulatives List](http://www.sfusdmath.org/manipulatives.html)
* [Printable Manipulatives](https://www.mathematicalpractices.com/mp1e/content/printable-manipulatives/)
* [SFUSD Manipulatives List](http://www.sfusdmath.org/manipulatives.html)
* [Printable Manipulatives](https://www.mathematicalpractices.com/mp1e/content/printable-manipulatives/)
* [Achieve the Core Instructional Practice Guide K-8](https://achievethecore.org/category/1155/printable-versions)
* [Mississippi Exemplar Units and Lesson Plans-Grade 5 Math](https://www.mdek12.org/sites/default/files/documents/OAE/OEER/Exemplar%20Units/math/5th-Grade-Exemplar-Unit-FINAL.pdf)
* [Mississippi CCRS Exemplar Lesson Plans](https://mdek12.org/ESE/math/lesson-plans)
* [HCPSS Family Mathematics Support Center-Grade 5](https://hcpss.instructure.com/courses/34431/pages/grade-5-star-mathematics-overview)
* [MS CCRS Scaffolding Documents](https://mdek12.org/ese/ccr)
* [Access for All Guidance](https://mdek12.org/sites/default/files/documents/OAE/OAE/2019-access-for-all-guide.pdf)
* [MDE Family Guides for Student Success](https://mdek12.org/OAE/OEER/FamilyGuidesEnglish)\*

(Alternative Language: [Spanish](https://mdek12.org/OAE/OEER/FamilyGuidesSpanish))*\*This resource can be used for standards reinforcement of previous grades.* | * [Illustrative Mathematics Understanding the Standards for Mathematical Practices (SMPs)](http://tasks.illustrativemathematics.org/practice-standards/)
* [Inside Mathematics Mathematical Practice Standards](https://www.insidemathematics.org/common-core-resources/mathematical-practice-standards)
* [Inside Mathematics Mentors of Mathematical Practice](https://www.insidemathematics.org/common-core-resources/mentors-of-mathematical-practice)
 | * [MS MAAP Program](https://mdek12.org/OSA/MAAP)
* [MS MAAP-A Program](https://mdek12.org/OSA/SP/MAAP-A)
* [MS MAAP Mathematics Resources](https://districtaccess.mde.k12.ms.us/studentassessment/Public%20Access/Forms/AllItems.aspx?RootFolder=%2Fstudentassessment%2FPublic%20Access%2FStatewide%5FAssessment%5FPrograms%2FMAAP%2DMississippi%20Academic%20Assessment%20Program%2FMath%5FGuidance)
* [Inside Mathematics Performance Tasks 2-HS](https://www.insidemathematics.org/performance-assessment-tasks)
* [Illustrative Mathematics Grade 5 Tasks](http://tasks.illustrativemathematics.org/content-standards/5)
* [Goalbook Pathways Grade 5](https://goalbookapp.com/pathways/?ref=topic" \l "!/browse-topics/math/5)
* [Khan Academy Grade 5](https://www.khanacademy.org/math/cc-fifth-grade-math)
 | * [MDE Professional Development Resources](https://www.mdek12.org/OPD/home)
* [MARS Prototype Professional Development Modules](https://www.map.mathshell.org/pd.php)
* [NCTM Professional Development Resources](https://www.nctm.org/Conferences-and-Professional-Development/Professional-Development-Resources/)
* [Inside Mathematics Classroom Videos](https://www.insidemathematics.org/classroom-videos)
* [NCTM Math Forum](https://www.nctm.org/tmf/mathed/mathed.research.new.html)
* [Great Minds (Eureka) Webinars](https://eurekamath.greatminds.org/webinar-library)
* [Using Manipulatives in the Classroom](https://www.teachervision.com/professional-development/using-manipulatives)
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| Applets, Demos, Interactives, and Virtual Manipulatives |
| * [CPM Tiles](https://technology.cpm.org/general/tiles/)
* [Didax Virtual Manipulatives](https://www.didax.com/math/virtual-manipulatives.html)
* [Didax Free Activity Guides for Virtual Manipulatives](https://www.didax.com/virtual-manipulatives-activities)
* [GeoGebra Virtual Manipulatives](https://www.geogebra.org/m/NPDu3rCm)
* [Houghton Mifflin and Harcourt iTools](https://www-k6.thinkcentral.com/content/hsp/math/hspmath/na/common/itools_int_9780547584997_/main.html)
* [Math Playground Math Manipulatives](https://www.mathplayground.com/math_manipulatives.html)
* [McGraw Hill (Glencoe) Virtual Manipulatives](http://www.glencoe.com/sites/common_assets/mathematics/ebook_assets/vmf/VMF-Interface.html)
* [The Math Learning Center Math Apps](https://www.mathlearningcenter.org/apps)
* [Toy Theatre Virtual Manipulatives](https://toytheater.com/category/teacher-tools/virtual-manipulatives/)
* [Visnos Mathematical Demonstrations](https://www.visnos.com/demos)
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| **TERM 1****UNIT OF STUDY**(REAL-WORLD APPLICATION)**q** | **MS CCR STANDARDSq** | **STANDARDS FOR MATHEMATICAL PRACTICE (SMPs)q** | CORE ACADEMIC **VOCABULARY TERMSq** |
| --- | --- | --- | --- |
| **Unit 1: Base-10 numbers and Metric Measurement Conversions.** (Extension of base-10 numbers and decimal notation in grade 4. Students expand this knowledge to powers of 10 and its relation to place value and decimal. This is foundational for operations with rational numbers.) | **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.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | Base-10Place Value |
|  | **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.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | BaseExponentPowers Of 10Whole Number Exponent |
| (Foundational skill of measurement, students learn to convert between metric units.) | 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. | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
 | ConversionConvertMetric SystemStandard Measurement Unit |
|  | **5.NBT.3 Read, write, and compare decimals to thousandths.****5.NBT.3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).****5.NBT.3b Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | Base-10CompareDecimalDecimal NotationDecimal PointEqual (=)Expanded FormGreater Than (>)HundredthsLess Than (<)NearestOnesPlace ValueRoundStandard FormTenthsThousandths |
| **Unit 2: Using Place Value to Round** (Students build on knowledge from grades K-4 of understanding the values of whole numbers based on place value of the digits. Using this understanding, students learn to round decimals which develops the skill of estimation and working with money.) | **5.NBT.4 Use place value understanding to round decimals to any place.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | DecimalDecimal NotationDecimal PointHundredthsNearestOnesPlace ValueRoundTenthsThousandths |
| **Unit 3: Addition and Subtraction of Decimals** (Introduction of Addition and Subtraction of decimals, students relate the skill of Addition and Subtraction of whole numbers to Addition and Subtraction of decimals. This is foundational to operations with rational numbers.) | **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.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 7** Look for and make use of structure.
 | AdditionConcrete ModelDecimalDecimal NotationDecimal PointDivision MultiplicationNumber PropertiesPlace ValueSubtraction |
| **Unit 4: Whole Number Multiplication and Division** (As an extension to multiplication and division of whole numbers in grades 3-4, students learn to use the standard algorithm to multiply and divide. An extension of skip counting, multiplication requires students to visualize groups of things rather than individual things.) | **5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | AlgorithmFactorMulti-Digit NumberMultiplicationProductStandard Algorithm |
|  | **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.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 7** Look for and make use of structure.
 | Area ModelArrayDividendDivisorEquationPlace ValueQuotientRemainder |
| **Unit 5: Customary Conversions**(Foundational skill of measurement, students learn to convert between U.S. customary units.) | 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. | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
 | ConversionConvertCustomary SystemStandard Measurement Unit |

| **TERM 2****UNIT OF STUDY**(REAL-WORLD APPLICTION)**q** | **MS CCR STANDARDSq** | **STANDARDS FOR MATHEMATICAL PRACTICE (SMPs)q** | CORE ACADEMIC **VOCABULARY TERMSq** |
| --- | --- | --- | --- |
| **Unit 6: Volume with Whole Number Dimensions** (Students develop an understanding of the concept of volume. They find the volume of prisms and recognize the patterns that exist when finding the sum of the unit cubes to constructing the formula. This skill is used in architecture, carpentry, and other mathematical and engineering fields.) | **5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.****5.MD.3a 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.****5.MD.3b 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.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | AttributeAreaBaseComposeCubic Cm.Cubic Ft.Cubic In.Cubic M.Cubic UnitDecomposeFormulaGapHeightLengthOverlapPlane FigureSide LengthSolid FigureThree-Dimensional FigureTilingUnit CubeVolumeWidth |
|  | **5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
 | Cubic Cm.Cubic Ft.Cubic In.Cubic M.Cubic UnitSide LengthUnit CubeVolume |
|  | **5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.****5.MD.5a 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.****5.MD.5b Apply the formulas *V* = *l* × *w* × *h* and *V* = *b* × *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.****5.MD.5c 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.** | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | AttributeAreaBaseComposeCubic Cm.Cubic Ft.Cubic In.Cubic M.Cubic UnitDecomposeFormulaGapHeightLengthOverlapPlane FigureSide LengthSolid FigureThree-Dimensional FigureTilingUnit CubeVolumeWidth |
| **Unit 7: Multiplication and Division of Decimals** (Introduction of multiplying and dividing decimals, students relate the skill of multiplying and dividing whole numbers to multiplying and dividing decimals. This is foundational to operations with rational numbers.) | **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.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 7** Look for and make use of structure.
 | AdditionDecimalDecimal NotationDecimal PointDivision MultiplicationNumber PropertiesPlace ValueSubtraction |
| **Unit 8: Writing Expressions and Simplifying Expressions** (Students learn to write and simplify numerical expressions while building an understanding of grouping symbols. This is a foundational skill for translating context into mathematical computations, writing, and solving equations.) | 5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 5** Use appropriate tools strategically.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | Braces { }Brackets [ ]ExpressionGroupingNumber PhraseNumerical ExpressionOrder of OperationsParenthesis () |
|  | 5.OA.2 Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product*. | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | ExpressionGroupingNumber PhraseNumerical ExpressionOrder of OperationsParenthesis ()Simple Expression |
| **Unit 9: Adding and Subtracting Fractions with Unlike Denominators** (Extension of Grade 4 where students added and subtracted fractions with like denominators. This is foundational to operations with rational numbers.) | **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. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 7** Look for and make use of structure.
 | Common DenominatorComposeDecomposeDenominatorDifferenceEquivalent FractionFractionLike DenominatorMixed NumberNumber PropertiesNumeratorSumUnlike DenominatorVisual Fraction ModelWhole |
|  | **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. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2*.** | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | Common DenominatorComposeDecomposeDenominatorDifferenceEquivalent FractionFractionLike DenominatorMixed NumberNumber PropertiesNumeratorSumUnlike DenominatorVisual Fraction ModelWhole |

| **TERM 3****UNIT OF STUDY**(REAL-WORLD APPLICATION)**q** | **MS CCR STANDARDSq** | **STANDARDS FOR MATHEMATICAL PRACTICE (SMPs)q** | CORE ACADEMIC **VOCABULARY TERMSq** |
| --- | --- | --- | --- |
| **Unit 10: Area and Multiplying Fractions** (Continuation of multiplying fractions from grade 4, students relate the skill of multiplying whole numbers to multiplying fractions. This is foundational to operations with rational numbers. Students learn to apply this computation to other grade level math skills such as finding area with fractional side lengths.) | **5.NF.5 Interpret multiplication as scaling (resizing), by:****5.NF.5a 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.****5.NF.5b 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* × *a*)/(*n* × *b*) to the effect of multiplying *a*/*b* by 1.** | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | CompareDenominatorEqual To (=)FactorFractionGreater Than (>)HundredthsJustifyLess Than (<)NumeratorPlace ValueProduct |
|  | **5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.****5.NF.4a Interpret the product (*a*/*b*) × *q* as *a* part of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations*a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = (ac)/(bd).*****5.NF.4b 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.** | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | AreaEquationFormulaFactorFractionFractional Side LengthLengthMixed NumberProductSideUnknown FactorWidth |
|  | **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.** | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | Common DenominatorComposeDecomposeDenominatorDifferenceEquivalent FractionFractionLike DenominatorMixed NumberNumber PropertiesNumeratorSumUnlike DenominatorVisual Fraction ModelWhole |
| **Unit 11: Dividing Fractions**(Introduction of dividing fractions, students relate the skill of dividing whole numbers to dividing fractions. This is foundational to operations with rational numbers.) | **5.NF.3 Interpret a fraction as division of the numerator by the denominator (*a*/*b* = *a* ÷ *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. *For example, 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?*** | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 7** Look for and make use of structure.
 | DenominatorDividendDivisorFractionMixed NumberNumeratorQuotient |
|  | **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.7a Interpret division of a unit fraction by a non-zero whole number and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3*.****5.NF.7b Interpret division of a whole number by a unit fraction and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4*.****5.NF.7c 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. *For example, 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?*** | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
* **SMP 8** Look for and express regularity in repeated reasoning.
 | DenominatorDifferenceDivisionEquivalent FractionFractionLike DenominatorMixed NumberMultiplicative InverseNumber PropertiesNumeratorProductQuotientReciprocalUnlike DenominatorVisual Fraction ModelWhole |
| **Unit 12: Displaying Fractional Data** (Students learn to model their solutions to problems in organized data charts. This skill is foundational for statistics. It also translates to science as students collect and organize data when following the scientific method while conducting observations.) | 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. *For example, 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*. | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | Data SetFractionLine PlotOrder of Operation |

| **TERM 4****UNIT OF STUDY**(REAL-WORLD APPLICATION)**q** | **MS CCR STANDARDSq** | **STANDARDS FOR MATHEMATICAL PRACTICE (SMPs)q** | CORE ACADEMIC **VOCABULARY TERMSq** |
| --- | --- | --- | --- |
| **Unit 13: The Coordinate Plane**(Introduction to the coordinate plane. Students extend on understanding of graphing a number line to graphing a coordinate plane. The coordinate plane will serve as a tool in future algebraic and geometric concepts.) | 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). | * **SMP 4** Model with Mathematics.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | CoordinateCoordinate GridCoordinate PairCoordinate PlaneCoordinate ValueGraphGraphingOriginX-AxisX-ValueY-AxisY-Value |
|  | 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. | * **SMP 1** Make sense of problems and persevere in solving them.
* **SMP 2** Reason abstractly and quantitatively.
* **SMP 4** Model with Mathematics.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | CoordinateCoordinate GridCoordinate PairCoordinate PlaneCoordinate ValueGraphGraphingOriginX-AxisX-ValueY-AxisY-Value |
|  | 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. *For example, 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*. | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 7** Look for and make use of structure.
 | Coordinate PlaneCorresponding TermsGraphNumber PatternOrdered PairRule |
| **Unit 14: Classifying Two-Dimensional Figures** (As a foundational skill to Geometry, building from K-4, students classify two-dimensional figures.) | 5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | Attributes Closed Figure FeaturesOpen FigurePolygonQuadrilateral Subcategories Two-Dimensional |
|  | 5.G.4 Classify two-dimensional figures in a hierarchy based on properties. | * **SMP 2** Reason abstractly and quantitatively.
* **SMP 3** Construct viable arguments and critique the reasoning of others.
* **SMP 5** Use appropriate tools strategically.
* **SMP 6** Attend to precision.
* **SMP 7** Look for and make use of structure.
 | HierarchyPolygonTwo-Dimensional Figure |

***\* Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. Division of a fraction by a fraction is not a requirement at this grade.***

1. *https://tntp.org/assets/documents/TNTP\_The-Opportunity-Myth\_Web.pdf* [↑](#footnote-ref-2)