## Content Area

<table>
<thead>
<tr>
<th>Standard</th>
<th>Grade Level Expectations (GLE)</th>
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</table>
| 1. Number Sense, Properties, and Operations | 1. The decimal number system describes place value patterns and relationships that are repeated in large and small numbers and forms the foundation for efficient algorithms  
2. Formulate, represent, and use algorithms with multi-digit whole numbers and decimals with flexibility, accuracy, and efficiency  
3. Formulate, represent, and use algorithms to add and subtract fractions with flexibility, accuracy, and efficiency  
4. The concepts of multiplication and division can be applied to multiply and divide fractions |
| 2. Patterns, Functions, and Algebraic Structures | 1. Number patterns are based on operations and relationships |
| 3. Data Analysis, Statistics, and Probability | 1. Visual displays are used to interpret data |
| 4. Shape, Dimension, and Geometric Relationships | 1. Properties of multiplication and addition provide the foundation for volume an attribute of solids  
2. Geometric figures can be described by their attributes and specific locations in the plane |

### Colorado 21st Century Skills

- **Critical Thinking and Reasoning:** Thinking Deeply, Thinking Differently
- **Information Literacy:** Untangling the Web
- **Collaboration:** Working Together, Learning Together
- **Self-Direction:** Own Your Learning
- **Invention:** Creating Solutions

### Unit Titles

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<th>20 Days Aug. 19th - Sept. 16th</th>
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<td>Module 2: Multi-Digit Whole Number and Decimal Fraction Operation</td>
<td>35 Days Sept. 17th - Nov. 6th</td>
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<td>Module 3: Addition and Subtraction of Fractions</td>
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<td>Module 6: Problem Solving with the Coordinate Plane</td>
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## Module 1: Place Value and Decimal Fractions

Using Engage NY Module 1  
See Instructional Notes for more detail.

### Essential Questions

1. What different relationships exist between units in the base ten number system?  
2. What is the purpose of a place value system?  
3. What makes one strategy or algorithm better than another? (M.P. #5)

<table>
<thead>
<tr>
<th>Common Core Standards</th>
<th>EngageNY Lessons</th>
<th>Mathematical Practices</th>
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<tr>
<td>NBT.1 Recognize that in a multi-digit number, a digit in the ones 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.</td>
<td>1-4</td>
<td>1,4,6,7</td>
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<tr>
<td>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.</td>
<td>1-4; 9-12</td>
<td>2,4,7</td>
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</table>
| NBT.3 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 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (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. | 5-6 | 2,6,7 |
| NBT.4 Use place value understanding to round decimals to any place. | 7-8; 9-16 | 2 |
| 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. | | 7 |

### Performance Tasks:

- End of Module Common Assessment-Module 1 Assessment:
  - Scanned into School City  
  - Should be in addition to individually developed formative assessments

### Suggested Checks for Understanding
Mid-Module 1 Assessment: Take after lesson 8; all problems
Formative Assessments for Ordering Decimals
Formative Assessments for Place Value
Exit Tickets from corresponding lessons in Engage NY Module 1

Resources
Engage NY
https://www.engageny.org/resource/grade-5-mathematics
Van de Walle
EDM Games
EDM 5 minute math
Math Perspectives

“I Can” statements and exit tickets http://www.fwps.org/ftl/math-ccss/5th-grade-math-ccss/
ENY homework help http://www.oakdale.k12.ca.us/cms/page_view?d=x&pid=&vpid=1401784828612
Additional lesson videos https://learnzillion.com/
Additional practice includes videos www.tenmarks.com
Additional Exit tickets or homework https://grade5commoncoremath.wikispaces.hcpss.org/
Additional Practice includes videos https://www.khanacademy.org/math/cc-fifth-grade-math

Instructional Notes

These are recommended instructional ideas to accomplish mastery within modules. Math time will be divided between Number Talks, Numeracy Time with DNC Stations, and lessons from Engage NY. The length of module is given (number of days), but teachers need to be aware of their students’ mastery of concepts/standards throughout a module, using formative assessments, in order to determine pacing for their class.

Unit Highlights:
• Teachers are expected to take the unit of study assessment first to help plan instruction.
• It is imperative to review of the prerequisite skills needed to access understandings of place value, “ten times as much,” “1/10 of”, and decimals.
• Teachers need to supplement materials to include practice with decimals with ALL students.
• Engage NY is NOT intended as a script.
• When writing decimals in expanded notation, see language used in standard NBT.3a to teach during unit 7 lessons.
  e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000) 3.58 × 10^4 = 35,800
• Students will need to read, write, compare, and round to the nearest thousandth.
• Students will need to compare two decimals to thousandths based on meanings of the digit in each place using >, =, and < symbols to record the results of comparisons.
• Mathematical practices are introduced during this first unit but should be integrated in daily instruction throughout the year. Teachers may use card 15 to introduce each practice, or create an anchor lesson.
• Word problems may be practiced using ELD strategies. (eg. Collaborative posters, four corners, clarifying bookmark, etc.)

Lesson Notes:
• Application problems should be done, when present in lessons, prior to concept development; application problems have students apply skills taught in previous lessons prior to teaching the next lesson
• It is recommended that teachers print place value chart for students to allow them to use it as a tool. Lesson 1 Template 2 shows decimal units as well as fractional units to transfer writing decimals in expanded form; Lesson 3 has a template for powers of 10 that will help with exponential
Lesson 5 has a place value template that does not have fractional units to be used once students have the understanding of the fractional units in expanded notation; **Lesson 7 Template**

- **Lesson 1:** Consider using the Sprint from this lesson to practice multiplying by 10; consider using “Rename the Units” for fluency practice to set the foundation for the lesson
- **Lesson 2:** Consider using fluency pieces “Take Out the Tens” and “Bundle 10 and Change Units”
- **Lesson 3:** Consider using the Sprint (Multiply by 3) for fluency practice and using “Multiply by 10, 100, and 1,000”
- **Lesson 4:** Consider using “Write the Unit as a Decimal” and “Write in Exponential Form” for fluency practice
- **Lesson 5**: Lesson 5 is a critical lesson to teach expanded form; planned for 1 day, but this may take more days depending on students’ level of understanding. Consider using the Sprint (Multiply Decimals by 10, 100, and 1,000) and “Multyply and Divide by Exponents” as fluency practice
- **Lesson 6**: Comparing decimals; highly encouraged to do the Fluency activity, “Multiply by Decimal Fractions,” at the beginning of the lesson as it builds on the practice from lesson 5
- **Lesson 7-8:** Planned for 2 days; Lesson 7 may take both days depending on students’ level of understanding; lesson 8 may be an extended practice lesson for students who demonstrated proficiency in Lesson 7. From Lesson 8, consider using the fluency pieces called “Rename the Units” and “Round to Different Place Values.” If teacher chooses not to use Lesson 8, still consider using the Exit Ticket from Lesson 8 before the Mid-Module Assessment

**Optional:** Take Mid-Module assessment, spend 1 day taking the assessment, grade the assessment before the next day, use day 2 to remediate or apply; this is intended for driving instruction moving forward

- **Lesson 9:** Consider using fluency pieces “Decompose the Unit” and “One Unit More,” the Sprint in Lesson 9 practices rounding to the nearest whole number
- **Lesson 10:** Consider using fluency piece “One Unit Less”
- **Lesson 11:** Consider using fluency pieces “Take Out the Unit” and “Add and Subtract Decimals”; the Exit Ticket for this lesson would be a beneficial formative assessment for multiplying decimals and understanding place value
- **Lesson 12:** Consider using the Sprint (Adding Decimals) as a fluency piece, and “Find the Product” as another fluency piece
- **Lesson 13:** Consider using the Sprint (Subtracting Decimals) as a fluency piece, and “Find the Product” as another fluency piece
- **Lesson 14:** Consider using fluency pieces “Multiply and Divide by Exponents” and “Round to Different Place Values”
- **Lesson 15:** Consider using the Sprint (Multiply by Exponents) as a fluency piece; the Exit Ticket will be good to practice dividing decimals using the place value chart and standard algorithm
- **Lesson 16:** Consider using the Sprint (Multiply and Divide by Exponents) as a fluency piece; the concept development is the problem set of all word problems; one suggestion: this is where you might consider utilizing collaborative groups to solve the word problems; the Exit Ticket would be a good extension for students demonstrating proficiency

**Take End of Module assessment**

- **Note:** Each lesson has a fluency practice opportunity for teachers to use at their discretion; there are also Sprints as fluency drills in a few lessons

**Common Student Misconceptions**

- Students may believe the order in which a problem with mixed operations is written is the order to solve the problem.
- A common misconception that students have when trying to extend their understanding of whole number place value to decimal place value is that as you move to the left of the decimal point, the number increases in value.  
  - Reinforcing the concept of powers of ten is essential for addressing this issue.
  - Another misconception that is directly related to comparing whole numbers is the idea that the longer the number the greater the number. With whole numbers, a 5-digit number is always greater that a 1-, 2-, 3-, or 4-digit number. However, with decimals a number with one decimal place
may be greater than a number with two or three decimal places. For example, 0.5 is greater than 0.12, 0.009 or 0.499.

- One method for comparing decimals is to make all numbers have the same number of digits to the right of the decimal point by adding zero's to the number, such as 0.500, 0.120, 0.009 and 0.499. A second method is to use a place-value chart to place the numerals for comparison.

**Number Talks Instructional Strategies:** (Math Notes #1: Tips for Implementing Number Talks and #2: So What Goes into a Good Number Talk?)

- Establish routines
- Establish expectations
- Safe and Supportive Environment
- Independent Thinking
- Using models from concrete to abstract
- Think Pair Share and Students communicating the reasonableness of their answers and mathematical thinking.

**Sample Leveled Number Talk for this time of year:**

5+9= (100% accessibility for all students)
59+9= (90% accessibility for students)
509+19= (75-85% accessibility for students)

Number Talk levels should build on the same objective throughout the number talk.

- **Five Minute Math** (small book from EDM) is a great place to start for Number Talk ideas.
- Some of the Mental Math and Reflexes at the beginning of each lesson can be used as additional ideas for Number Talks.
- Data from AMC and RNI should be used as a way to develop appropriately leveled number talks.

**Numeracy Time:** *The following are suggestions that can be used throughout the year*

Continue to use data to introduce and develop numeracy stations. Ongoing evaluation and checks need to be in place to help support student growth.

- Assign and re-assign student to stations as needed
- Invitational groups can also be called during the numeracy time for added student support.
- Additional station ideas available from your math coach
- Establish routines and procedures for EDM games and Perspectives stations. Develop an environment that students can be independently working and accountable for their learning to maximize this time.

**EDM Games:**
- Developing Number Concepts Book 3: AMC Concepts 8 and 9 (Based on data use other AMC books as needed) “What’s It Worth” and “
- Understanding Numbers: Addition and Subtraction, Place Value and Decimals
- Van de Walle

**Important REMINDER regarding multiplication/division fact mastery:** Students who have completed Concept 9, but are not fluent with multiplication and division facts should be given the opportunity to develop their strategies with multiplication and division during numeracy using district approved resources, (e.g. Kathy Richardson and VanDeWalle)
## Module 2: Multi-digit whole number and Decimal Fraction Operation

Using Engage NY Module 2  
See Instructional Notes for more detail.

<table>
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<tr>
<th>Essential Questions</th>
<th>Technical Vocabulary</th>
<th>Academic Vocabulary</th>
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</table>
| 1. How do operations with decimals numbers compare to operations with whole numbers?  
2. How are multiplication and division related?  
3. How can I write an expression that demonstrates a situation or context? | partial-products, algorithm, difference, product, quotient, sum, remainder, divisor, multiplier, decimal fraction, | parenthesis, convert, express, estimate, solve, explain, remainder |

### Common Core Standards

<table>
<thead>
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<th>Common Core Standards</th>
<th>Engage NY Lessons</th>
<th>Mathematical Practices</th>
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<tr>
<td>5.OA.A.1 Use parenthesis, brackets, or braces in numerical expressions, and evaluate expressions with these symbols</td>
<td>3-9</td>
<td>1,2,6</td>
</tr>
<tr>
<td>5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation &quot;Add 8 and 7, then multiply by 2&quot; as (2 \times (8 + 7)). Recognize that (3 \times (18932 + 921)) is 3 times as large as 18932 + 921, without having to calculate the indicated sum or product.</td>
<td>3-9</td>
<td>1,2,6</td>
</tr>
<tr>
<td>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.</td>
<td>13-15</td>
<td>1,2,6</td>
</tr>
<tr>
<td>5.NBT.1 Recognize that in a multi-digit number, a digit in the ones 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.</td>
<td>1-2, 16-18</td>
<td>1,4,6,7</td>
</tr>
<tr>
<td>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.</td>
<td>1-2, 16-18, 24-27</td>
<td>2,4,7</td>
</tr>
<tr>
<td>5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.</td>
<td>3-9, 13-15</td>
<td>1,2,6</td>
</tr>
<tr>
<td>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.</td>
<td>16-18, 19-23, 28-29</td>
<td>1,2,6</td>
</tr>
<tr>
<td>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.</td>
<td>10-12, 13-15, 27-29</td>
<td>1,2,4,6</td>
</tr>
</tbody>
</table>

**Performance Tasks**

- **End of Module Common Assessment-Module 2 Assessment:**
  - Scanned into School City
  - Should be in addition to individually developed formative assessments

**Suggested Checks for understanding:** Teachers may use exit tickets within EngageNY lessons.

**Resources**

<table>
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<tr>
<th>EngageNY</th>
<th><a href="https://www.engageny.org/resource/grade-5-mathematics">https://www.engageny.org/resource/grade-5-mathematics</a></th>
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<tr>
<td>Van de Walle</td>
<td>EDM Games</td>
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<tr>
<td>EDM 5 minute math</td>
<td>Math Perspectives</td>
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**Instructional Notes**

These are recommended instructional ideas to accomplish mastery within modules. Math time will be divided between Number Talks, Numeracy Time with DNC Stations, and lessons from Engage NY. The length of module is given (number of days), but teachers need to be aware of their students’ mastery of concepts/standards throughout a module, using formative assessments, in order to determine pacing for their class.

**Unit Highlights:**

- By the end of this unit students should be able to read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., \(347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)\).
- **Mathematical practices are introduced during the first unit but should be integrated in daily instruction throughout the year.**
- Word problems may be practiced using ELD strategies. (eg. Collaborative posters, four corners, clarifying bookmark, etc.)
- **Application problems should be done, when present in lessons, prior to concept development; application problems have students apply skills taught in previous lessons prior to teaching the next lesson.**
- **Starting in this Module, begin using the PARCC Conversion Sheet to work with conversions.**
- With lessons involving estimation, it is crucial for students to be able to think critically about the reasonableness of their answers.
- Engage NY is NOT intended as a script.


ENY homework help [http://www.oakdale.k12.ca.us/cms/page_view?id=x&piid=&vpid=1401784828612](http://www.oakdale.k12.ca.us/cms/page_view?id=x&piid=&vpid=1401784828612)

Additional lesson videos [https://learnzillion.com/](https://learnzillion.com/)

Additional practice includes videos [www.tenmarks.com](http://www.tenmarks.com)

Additional Exit tickets or homework [https://grade5commoncoremath.wikispaces.hcpss.org/](https://grade5commoncoremath.wikispaces.hcpss.org/)

Additional Practice includes videos [https://www.khanacademy.org/math/cc-fifth-grade-math](https://www.khanacademy.org/math/cc-fifth-grade-math)
Lesson Notes:

- Lesson 1: Consider using all 3 fluency activities; Lesson 1 uses a new place value chart that goes to the millions.
- Lesson 2: Consider using the Sprint (Multiply by 10, 100, and 1,000) and “Round to Different Place Values” for fluency practice. Also consider using the Exit Ticket; it has students practicing rounding and estimating products.
- Lesson 3: Consider using “Estimate Products” and “Decompose a Factor: The Distributive Property” as fluency practice. On the Exit Ticket, the first problem (a and b) will be a beneficial progress check on OA 2. Note: the terminology in this lesson will build a vocabulary background and set students up for success later on.
- Lesson 4: Consider using “Estimate Products” and “Write the Value of the Expression” for the fluency piece.
- Lesson 5: Consider using the Sprint (Estimate Products by Rounding) and “Multiply by Multiples of 100” for fluency practice. The Exit Ticket asks students to use multiple strategies to demonstrate their knowledge of multiplication; it will be a good progress check.
- Lesson 6: Consider using “Multiply Using the Area Model” and the Sprint (Multiplication and Subtraction Fluency Practice) for fluency practice. The Exit Ticket works with the standard algorithm and the area model and makes connections between the two methods. Note: ensuring the use of the terminology “area model,” “distributive property” and “standard algorithm” in this lesson will build a vocabulary background and set students up for success later on.
- Lesson 7: Consider using both fluency activities. The Exit Ticket works with the standard algorithm and the area model and makes connections between the two methods.
- Lesson 8: This lesson removes the scaffolding of the area model and moves to standard algorithm for multiplication. Consider using both fluency pieces for this lesson. The Exit Ticket will be beneficial to check students’ ability to estimate and use the standard algorithm. Note: practicing estimating prior to using standard algorithm will be beneficial for students to verify place value of their expression products; this lesson addresses the importance of rounding and estimating before solving. Also, ensuring the use of the terminology “reasonableness” will build a vocabulary background and set students up for success later on.
- Lesson 9: Consider using both fluency pieces. The Exit Ticket will be beneficial because it is a multi-step word problem. Note: There is no application problem for this lesson. The problem set is also the concept development. Consider using collaborative groups to work through the problems.
- Lesson 10: Consider using “Multiply, Then Divide, by the Same Number” for fluency practice. The Exit Ticket involves estimating the product and then solving using both area model and standard algorithm.
- Lesson 11: Consider using the Sprint (Multiply Decimals) to prepare students for the concept development of this lesson. The Exit Ticket has students estimate and use place value reasoning to determine the product; consider doing the first one to have students demonstrate their place value knowledge.
- Lesson 12: Consider using “Unit Conversion” for the fluency piece in preparation for upcoming lessons on measurement (Lessons 13-15). The Exit Ticket involves estimating and using standard algorithm only to solve.
- Lesson 13: Consider using “Multiply by 1/10, 1/100, and 1/1,000” and “Unit Conversions” for the fluency piece. The Exit Ticket give students more practice with conversions. It would be beneficial to make an anchor chart of common unit conversions students may need for lessons 13-15.
- Lesson 14: Consider using “Unit Conversions” and “Multiply Unit Fractions” for the fluency practice. This lesson is all conversions, so students may use their PARCC Conversion Reference Sheet. The Exit Ticket checks for understanding of unit conversions. It would be beneficial to make an anchor chart of common unit conversions students may need for lessons 13-15.
- Lesson 15: Consider using the Sprint (Unit Conversions) for the fluency piece. For this lesson, the concept development is the problem set, so consider utilizing collaborative groups to work through the problems. The Exit Ticket will be good practice on two-step word problems with conversions. Note: There is NO application problem for this lesson. Also, it would be beneficial to make an anchor chart of common unit conversions students may need for lessons 13-15.
- Optional: Take Mid-Module assessment, spend 1 day taking the assessment, grade the assessment before the next day, use day 2 to remediate or apply; this is intended for driving instruction moving forward.
Lesson 16: Consider using the Sprint (Divide using Divide by 10 Patterns) and “Group Count by Using Multiples of 10” (this will prepare students for lesson 17) for fluency practice. This Exit Ticket will be helpful to check for which strategy students are finding success with when dividing by powers of 10. Note: For this lesson, students are dividing by powers of 10; using a place value chart and/or place value discs (as guided in this lesson) will be beneficial for students overall.

Lesson 17: Consider using “The Group Count by Multiples of 10” and “Round to the Nearest Ten” as fluency practice. For this Exit Ticket, students have to estimate the quotient; this will be good practice and indication of students’ ability to round and estimate answers. For this lesson, ensuring the use of the terminology “dividend,” “divisor,” and “quotient” will build a vocabulary background and set students up for success later on.

Lesson 18: Consider using “Estimate and Divide” for the fluency practice.

Lesson 19: Consider using “Estimate and Divide” and “Group Count by Multi-digit Numbers” for fluency practice. This lesson involves: estimation and solving, without using the remainder in the answer. They use the remainder to check the answer. The Exit Ticket is a good progress check as to whether students grasped the concept for the lesson or not.

Lesson 20: Consider using “Group Count by Multi-digit Numbers” and “Divide by Multiples of 10 With Remainders” (a review of Lesson 19) for fluency practice. This is continuing practice from Lesson 19.

Lesson 21: Consider using “Group Count by Multi-digit Numbers” and “Divide by Two-Digit Numbers” for fluency practice. This is continuing practice from Lesson 19.

Lesson 22: Consider using “Divide Decimals” and “Group Count by Multi-digit Numbers” for fluency practice. This lesson starts dividing by two-digit numbers.

Lesson 23: Consider using “Dividing Decimals” and “Rename Tenths and Hundreths” for fluency practice.

Lesson 24: Consider using “Rename Tenths and Hundreths” and “Dividing Decimals” for fluency practice. Consider using the place value discs and place value charts for this lesson. Also, consider using the Exit Ticket as a check for understanding of division and place value.

Lesson 25: Consider using “Rename Tenths and Hundreths” for fluency practice. In this lesson, students use estimation to find approximate quotients.

Lesson 26: Consider using “Rename Tenths and Hundreths” and “Estimate the Quotient” for fluency practice. The application problem comes after the concept development in the lesson; you can choose when to have students do the application problem.

Lesson 27: Consider using “Unit Conversions” for fluency practice. The Exit Ticket asks students to divide and solve, including the remainder; it is a good progress monitoring for the students’ ability to divide all the way through.

Lesson 28: Consider using “Unit Conversions” for fluency practice to prepare students for the concept development of this lesson. With this lesson, delivery of instruction for solving word problems will involve steps important for teaching students. There is no application problem for this lesson and the concept development is the problem set. Note: Teachers may consider creating an anchor chart of the steps to solve word problems for their classrooms to refer to later. It is also a suggestion: teachers use the problem set to model the steps for solving word problems presented in this lesson and also use problem set word problems for guided practice to ensure students understand the process prior to independent work. The Exit Ticket can be used as an application in the classroom to check for an understanding of the steps.

Lesson 29: Consider using “Unit Conversions” for fluency practice. The problem set is the concept development here. In this lesson, it may work for students to work in collaborative groups to solve the word problems; the Exit Ticket can be used to check individual progress with how to solve word problems.

Take End of Module assessment

Note: Each lesson has a fluency practice opportunity for teachers to use at their discretion; there are also Sprints as fluency drills in a few lessons

Student Misconceptions

Students might compute the sum or difference of decimals by lining up the right-hand digits as they would whole number. For example, in...
computing the sum of 15.34 + 12.9, students will write the problem in this manner:

\[
\begin{array}{c}
15.34 \\
+ 12.9 \\
16.63 \\
\end{array}
\]

- To help students add and subtract decimals correctly, have them first estimate the sum or difference. Providing students with a decimal-place value chart will enable them to place the digits in the proper place.

Number Talks: (Math Notes #1: Tips for Implementing Number Talks and #2: So What Goes into a Good Number Talk?)

Sample Leveled Number Talk for Unit 2

11.0-3.0 = (100% accessibility for all students)
11.5-3.5 = (90% accessibility for students)
1.15-0.3 = (75-85% accessibility for students)

Number Talk levels should build on the same objective throughout the number talk

- Five Minute Math (small book from EDM) is a great place to start for Number Talk ideas.
- Some of the Mental Math and Reflexes at the beginning of each lesson can be used as additional ideas for Number Talks.
- Data from AMC and RNI should be used as a way to develop appropriately leveled number talks.

Numeracy Time and Stations:

Numeracy Time: The following are suggestions that can be used throughout the year

Continue to use data to introduce and develop numeracy stations. Ongoing evaluation and checks need to be in place to help support student growth.

- Assign and re-assign student to stations as needed
- Invitational groups can also be called during the numeracy time for added student support.
- Additional station ideas available from your math coach
- Establish routines and procedures for EDM games and Perspectives stations. Develop an environment that students can be independently working and accountable for their learning to maximize this time.

- EDM Games: First to 100
- Developing Number Concepts Book 3: AMC Concepts 8 and 9 (Based on data use other AMC books as needed)
- Understanding Numbers: Addition and Subtraction, Place Value and Decimals
- Van de Walle

Important REMINDER regarding multiplication/division fact mastery: Students who have completed Concept 9, but are not fluent with multiplication and division facts should be given the opportunity to develop their strategies with multiplication and division during numeracy using district approved resources, (e.g. Kathy Richardson and VanDeWalle)
Module 3: Addition and Subtraction of Fractions
Using Engage NY Module 3
See Instructional Notes for more detail.

Focus Lens(es): Fractions

Length of Unit: 25 Days
November 9th - December 16th

Essential Questions address the big ideas and should be the focus for the entire Module. Students will work towards making sense of concepts in order to answer the question by the end of instruction. The essential question should be a part of every day’s lesson. Posting is helpful but it’s the daily student debrief that allows students to reflect on the essential question.

Essential Questions:
1. How do operations with fractional numbers compare to operations with whole numbers?
2. How can making equivalent fractions and using models help us solve problems?

Technical Vocabulary:
whole number, mixed number, unit, denominator, numerator, fraction, equivalent, improper fraction

Academic Vocabulary:
common,

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<tr>
<td>5.N.F.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.</td>
<td>3-16</td>
<td>1,4,6,7</td>
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<td>5.N.F.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 3/7 &lt; 1/2</td>
<td>3-16</td>
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Performance Tasks
End of Module Common Assessment-Module 3 Assessment:
- Scanned into School City
- Should be in addition to individually developed formative assessments

Suggested Checks for understanding: Teachers may use exit tickets within EngageNY lessons.

Resources
EngageNY- https://www.engageny.org/resource/gre
Van de Walle
Greeley-Evans School District 6
6/29/15 for 2015-2016

“1 Can” statements and exit tickets http://www.fwps.org/tfl/math-ccss/5th-grade-math-ccss/
ENY homework help http://www.oakdale.k12.ca.us/cms/page_view?d=x&pid=&vpid=1401784828612
Additional lesson videos https://learnzillion.com/
Additional practice includes videos www.tenmarks.com
Additional Exit tickets or homework https://grade5commoncoremath.wikispaces.hcpss.org/
Additional Practice includes videos https://www.khanacademy.org/math/cc-fifth-grade-math
EDM Games
EDM 5 minute math
Math Perspectives

Instructional Notes

These are recommended instructional ideas to accomplish mastery within modules. Math time will be divided between Number Talks, Numeracy Time with DNC Stations, and lessons from Engage NY. The length of module is given (number of days), but teachers need to be aware of their students’ mastery of concepts/standards throughout a module, using formative assessments, in order to determine pacing for their class.

Unit Highlights:

- EngageNY Module 3 will be used as the curriculum for instructing the addition and subtraction of fractions and mixed numbers. The focus on the conceptual understanding of fractions is necessary.
- Engage NY is NOT intended as a script.
- When planning with Engage NY, focus instruction within the following sections: concept development, application problems, student debrief
- Exit tickets may be used as a formative assessment.
- Homework pages are optional for extra practice.
- It’s important that students represent the problems they are solving, have a visual image of the “why” behind the algorithm, and can explain their reasoning.
- Mathematical practices are introduced during the first unit but should be integrated in daily instruction throughout the year.

Word problems may be practiced using ELD strategies. (eg. Collaborative posters, four corners, clarifying bookmark, etc.)

Lesson Notes:

- Lesson 1: Consider using the Sprint (Write the Missing Factor) as fluency practice for this lesson. This lesson is a review of 4th grade fraction standards to build students’ understanding of equivalent fractions. The use of paper strips, number line, and area model are incorporated into this lesson.
- Lesson 2: Consider using the Sprint (Find the Missing Numerator and Denominator) and “Equivalent Fractions” as fluency practice; it hits the 5th grade N.F.1 standard. This lesson uses the number line to add fractions with like denominators.
- Lesson 3: Consider using all 3 fluency practice pieces; they will be beneficial to prepare students for the concept development. It may be beneficial to give students a couple sheets of paper to create and use the “rectangular fraction model” (ensuring the use of this vocabulary will benefit students in the future) to practice folding the paper to create equivalent fractions when adding fractions with unlike denominators. The Exit Ticket will be beneficial to see if students are able to apply the rectangular fraction model when adding fractions with unlike denominators and their ability to solve word problems.
- Lesson 4: Consider using “Skip Counting by 1/3 of a Yard” (supports MD1 and helps with addition and subtraction of fractions between 1 and 2) as fluency practice. This lesson has kids look at the number sentence to determine whether their answer will be greater than or less than their whole in order to determine the reasonableness of answers later. The Exit Ticket demonstrates whether students can model how to solve fractions with unlike denominators and their ability to solve them.
- Lesson 5: Consider using the Sprint (Subtracting Fractions from a Whole Number) as fluency practice. This lesson uses the rectangular fraction model for subtraction of fractions with unlike denominators.
- Lesson 6: Consider using all the fluency pieces for fluency practice to develop students’ understanding of the concept development problems. For this lesson, students are subtracting fractions from numbers between 1 and 2.
• Lesson 7: Consider using the Sprint (Circle Equivalent Fractions) to review 4th grade fraction standards to inform us about the students’ ability to recognize equivalent fractions mentally. There is no application problem; we will be solving two-step word problems. The concept development is the problem set; it is suggested that teachers model multiple solutions and strategies to solve problems and to ask for multiple solutions and strategies from students in problems in the future.

• **Optional: Take Mid-Module assessment, spend 1 day taking the assessment, grade the assessment before the next day, use day 2 to remediate or apply; this is intended for driving instruction moving forward**

• Lesson 8: Consider using “Subtracting Fractions From Whole Numbers” for fluency practice. For this lesson, students are using a number line to add and subtract whole numbers, fractions, and mixed numbers. The Exit Ticket will be beneficial; it gives students additional practice in adding and subtracting whole numbers and fractions in a method that works best for students. **Note: This lesson includes a number line template, if you choose to use it.**

• Lesson 9: This lesson may take two days due to the necessity of discussing, introducing, and teaching the Least Common Multiple (LCM) at the beginning of the lesson. Consider using the Sprint (Adding and Subtracting Fractions with Like Units); it is suggested to do the application problem after discussing LCM and giving students opportunities to practice.

• Lesson 10: Consider using the Sprint (Add and Subtract Whole Numbers...) to help students work with fractions of sums greater than two. In this lesson, **you may want to use the number line template from Lesson 8**, as you will be discussing how to use that tool to add fractions and mixed numbers.

• Lesson 11: In this lesson, students will be subtracting lessons with unlike denominators; there are 3 methods taught for how to solve these problems, so this lesson may take more than one day.

• Lesson 12: Consider using the Sprint (Subtract Fractions with Unlike Units, NF 1). The application problem has 2 problems within it; it may be easier to choose to use one or the other however you see fit, rather than having students do both. In this lesson, you may want to use the number line template from Lesson 8 again; you will also use tape diagrams. This lesson uses multiple methods for solving subtraction problems with unlike units; **it may take more than one day.**

• Lesson 13: Consider using “Adding and Subtracting Fractions with Unlike Units” for fluency practice. In this lesson, you may choose to revisit the idea of estimating before solving so students determine the reasonableness of their answer in relation to being greater or less than a whole or half; this will help support students in thinking critically about the reasonableness of their answers later on.

• Lesson 14: Consider using the Sprint (Make Larger Units); it reviews making like units to prepare students for the lesson. The application problem has 2 problems within it; it may be easier to choose to use one or the other however you see fit, rather than having students do both.

• Lesson 15: Consider using the Sprint (Circle the Smallest Fraction); it will help with the tasks for this lesson and with assessing the reasonableness of students’ answers. There is no application problem; the concept development is the problem set and all word problems. Consider having collaborative groups work on the word problems.

• Lesson 16: Consider using “Break Apart the Whole” and “Add Fractions With Answers Greater Than One” for the fluency practice in this lesson. There is no application problem in this lesson; the concept development is the problem set and all word problems. Consider having partners work on the word problems, with teacher feedback and direction, if needed.

• **Take End of Module assessment**

• Note: Each lesson has a fluency practice opportunity for teachers to use at their discretion; there are also Sprints as fluency drills in a few lessons

**Common Student Misconceptions**

Students often mix models when adding, subtracting, or comparing fractions.

• Students will use a circle for thirds and a rectangle for fourths when comparing fractions with thirds and fourths. Remind students that the representations need to be from the same whole models with the same shape and size.
• Students often do not borrow from the whole number when subtracting a mixed number. Converting the mixed number to an improper fraction may be used to help this misconception.

\[
3 \frac{1}{4} - 2 \frac{1}{2} \\
= 1 \frac{1}{4} - \frac{1}{2} \\
= \frac{5}{4} - \frac{2}{4} \\
= \frac{3}{4}
\]

Sample Leveled Number Talk

Fractions

\[
\frac{1}{2} + \frac{1}{4} = (100\% \text{ accessibility for all students}) \\
1 \frac{1}{2} + 4 \frac{1}{4} = (90\% \text{ accessibility for students}) \\
1.25 + 4.50 = (75-85\% \text{ accessibility for students})
\]

Number Talk levels should build on the same objective throughout the number talk.

Numeracy Time:

• Continue to use data to introduce and develop numeracy stations. Ongoing evaluation and checks need to be in place to help support student growth.
• Assign and re-assign student to stations as needed
• Invitational groups can also be called during the numeracy time for added student support.
• Additional station ideas available from your math coach
• Establish routines and procedures for EDM games and Perspectives stations. Develop an environment that students can be independently working and accountable for their learning to maximize this time.
• **EDM Games**: Fraction Top-It (comparing), Fraction Top-It (addition), Fraction Spin, Mixed Number Spin
• Developing Number Concepts Book 3: AMC Concepts 8 and 9 (Based on data use other AMC books as needed)
• Understanding Numbers: Addition and Subtraction, Place Value and Decimals
• Van de Walle Chapter 7

**Important REMINDER regarding multiplication/division fact mastery**: Students who have completed Concept 9, but are not fluent with multiplication and division facts should be given the opportunity to develop their strategies with multiplication and division during numeracy using district approved resources, (e.g. Kathy Richardson and VanDeWalle)
Module 4: Multiplication and Division of Fractions and Decimal Fractions
Using EngageNY Module 4
See Instructional Notes for more detail.

Focus Lens(es): Division and Multiplication of Fractions and Decimal Fractions

Length of Unit 35 Days
January 5th-February 25th

Technical Vocabulary:
quick common denominator, least common multiple, simplest form, scaling, unit form

Academic Vocabulary:
model, method, equally, diagram, reasoning, produced

Essential Questions:
1. Does multiplying always result in an increase? Why?
2. Does dividing always result in a decrease? Why?

### Common Core Standards

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<p>| <strong>5.NBT.7</strong> | 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. | 13-20, 25-31 | 2,4 |
| <strong>5.NF.3</strong> | 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? | 2-5 | 2, 4 |
| <strong>5.NF.4</strong> | Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. | 6-9, 10-12, 13-20 | 2,4,5 |
| 5.NF.4.A | Interpret the product of (a/b) x q as a parts of a partition of q into b equal parts; equivalently as the result of a sequence of operations a x q ÷ b. For example, use a visual fraction model to show (2/3) x 4 = 8/3 and create a story context for this equation. Do the same with (2/3) x (4/5) = 8/15 (in general, (a/b) x (c/d) = ac/bd) | | |
| 5.NF.4.B | Find the area of a rectangle with fractional side lengths by tilting it with unit squares of the appropriate unit fraction side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas. | 10-24 | 2,4 |
| 5.NF.6 | C. SOLVE REAL WORLD PROBLEMS INVOLVING MULTIPLICATION OF FRACTIONS AND MIXED NUMBERS, E.G., BY USING VISUAL FRACTION MODELS OR EQUATIONS TO REPRESENT THE | | |</p>
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<td>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.</td>
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<td>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.</td>
<td>1</td>
<td>2,5</td>
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<td>5.OA.A.1 Use parenthesis, brackets, or braces in numerical expressions, and evaluate expressions with these symbols</td>
<td>10-12, 25-33</td>
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<td>5.OA.A.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 X (8 + 7). Recognize that 3 X (18932 + 921) is 3 times as large as 18932 + 921, without having to calculate the indicated sum or product.</td>
<td>10-12, 32-33</td>
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<td>5.NF.5 Interpret multiplication as scaling (resizing) by:</td>
<td>21-24</td>
<td>2,4</td>
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<td>5.NF.B.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</td>
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<td>5.NF.B.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 x a) / (n x b) to the effect of multiplying a/b by 1.</td>
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<td>5.NF.7 APPLY AND EXTEND PREVIOUS UNDERSTANDINGS OF DIVISION TO DIVIDE UNIT FRACTIONS BY WHOLE NUMBERS AND WHOLE NUMBERS BY UNIT FRACTIONS</td>
<td>25-31</td>
<td>2</td>
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<td>5.NF.B.7.A 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) X 4 = 1/3.</td>
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<tr>
<td>5.NF.B.7.B 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 X (1/5) = 4.</td>
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<td>5.NF.B.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. FOR EXAMPLE, HOW MUCH CHOCOLATE WILL EACH PERSON GET IF 3 PEOPLE SHARE ½LB OF CHOCOLATE EQUALLY? HOW MANY 1/3-CUP SERVINGS ARE IN 2 CUPS RAISINS?</td>
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**Performance Tasks**
- End of Module Common Assessment-Module 4 Assessment:
  - Scanned into School City
  - Should be in addition to individually developed formative assessments
**Suggested Checks for understanding:** Teachers may use exit tickets within EngageNY lessons.

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**Instructional Notes**

These are recommended instructional ideas to accomplish mastery within modules. Math time will be divided between Number Talks, Numeracy Time with DNC Stations, and lessons from Engage NY. The length of module is given (number of days), but teachers need to be aware of their students’ mastery of concepts/standards throughout a module, using formative assessments, in order to determine pacing for their class.

**Unit Highlights:**

- **Mathematical practices are introduced during the first unit but should be integrated in daily instruction throughout the year.**
- **Word problems may be practiced using ELD strategies.** (eg. Collaborative posters, four corners, clarifying bookmark, etc.)
- This is a critical unit for formative assessments. Depending on your class and students’ performance you will want to emphasize certain aspects of the unit. There are 35 days for suggested instruction; however, there are 35 days given for the unit instruction. In addition, be aware of when CMAS will take place to make sure students have mastered this unit before CMAS-mathematics is administered.
- In EngageNY the student-teacher conversation is to be used as an example conversation not a script.
- When planning with Engage NY, focus instruction within the following sections: concept development, application problems, student debrief
- Exit tickets may be used as a formative assessment.
- Homework pages are optional for extra practice.
- *It’s important that students represent the problems they are solving, have a visual image of the “why” behind the algorithm, and can explain their reasoning.*

**Lesson Notes:**

- **Lesson 1:** Consider using “Compare Fractions” and “Decompose Fractions” for the fluency piece; Decompose Fractions will require number bonds. Concept development involves questions 1-4 of the problem set. **Note:** This is an essential lesson; it addresses MD 2, which is a priority standard for the district; it is the ONLY lesson this is addressed directly. Spending 2 days on this lesson would be beneficial; bringing in line plots during science will be helpful in guiding students to master this standard.
- **Lesson 2:** The application problem is essential because it reinforces MD 2. Consider using the fluency piece, which comes after the application problem in the lesson layout (it does not need to be taught that way), called “Divide With Remainders.” For this lesson, students use models for division of whole numbers that result in a fraction; teachers may want to have square pieces of paper on hand for students to manipulate during the lesson.
- **Lesson 3:** Consider using “Fractions as Division” and “Write Fractions as Decimals” for fluency practice. The concept development for this lesson is all word problems, but it is still essential for teachers to note and follow the recommended Engage NY process suggested in the teacher portion of
the concept development.

- Lesson 4: Consider using “Write Fractions as Decimals” and “Fractions as Division” for fluency practice. The concept development for this lesson is all word problems, but it is still essential for teachers to note and follow the recommended Engage NY process suggested in the teacher portion of the concept development. Consider using page 4.3.B.37 prior to the concept development word problems to work on strictly computation before jumping into word problems.

- Lesson 5: Consider using “Write Division Sentences as Fractions” and “Write Fractions as Mixed Numbers” for fluency practice. This lesson introduces a different process for solving word problems; it adds in having students consider the reasonableness of their answers. The problem set is used in the concept development; it is all word problems. The Exit Ticket will be a good check for understanding.

- Lesson 6: Consider using the Sprint (Divide Whole Numbers) for fluency practice. It is suggested teachers have manipulatives (counters, straws, etc) for students to manipulate for the lesson. Students will be making arrays to understand fractions of a whole. The Exit Ticket will be a good check for understanding.

- Lesson 7: Consider using “Read Tape Diagrams” and “Fractions as Whole Numbers” for fluency practice. For the concept development, it is essential for teachers to note and follow the recommended Engage NY process suggested in the teacher portion of the concept development.

- Lesson 8: Consider using “Convert Measures” and “Multiply a Fraction by a Whole Number” as fluency practice. For the concept development, it is essential for teachers to note and follow the recommended Engage NY process suggested in the teacher portion of the concept development because the students are learning how to do a new strategy to multiply a fraction by a whole number. Note: This lesson has a reference sheet included in the lesson; for any new conversions from the Engage NY sheet not on the PARCC Reference sheet, have students add them in.

- Lesson 9: For this lesson, students will need their PARCC Mathematics Reference Sheet readily available. Note: This is another essential lesson; it involves finding fractions of a measurement.

- Lesson 10: Consider using “Find the Unit Conversion” for fluency practice because it reinforces MD2. For concept development, use problem 1 and 2 because they are not required to compare expressions for the assessment later. For the problem set, consider only having students do problems 1, 2, and 5 for the same reason.

- Lesson 11: Consider using “Convert Measures” for fluency practice. This lesson uses the same word problem solving process as in Lesson 5; the concept development is also the problem set.

- Lesson 12: Consider using “Convert Measures” and “Write theExpression to Match the Diagram” for fluency practice. The application problem involves conversion, so students may want to have the PARCC Mathematics Reference sheet on hand; also consider printing the application problem for students to work on. The problem set is the concept development; it is suggested to only do problems 1-3 and problems 4-6 could be extensions for students demonstrating proficiency.

- Optional: Take Mid-Module assessment, spend 1 day taking the assessment, grade the assessment before the next day, use day 2 to remediate or apply; this is intended for driving instruction moving forward.

- Lesson 13: Consider doing both fluency activities; there is no application problem. Problem 1 in concept development may be done whole group or modeled by the teacher to introduce using the rectangular fraction model for finding a fraction of a fraction. Note: For students who need the manipulatives, it may be helpful for paper to be available to students to fold and draw on to create the rectangular fraction model.

- Lesson 14: Consider doing the Sprint (Multiply a Fraction and Whole Number) for fluency practice. The Exit Ticket will be a great check for understanding. Note: For students who need the manipulatives, it may be helpful for paper to be available to students to fold and draw on to create the rectangular fraction model.

- Lesson 15: Consider using “Write Fractions as Decimals” and “Convert to Hundreths” as fluency practice. For the concept development, have students review the rectangular fraction model by doing 1 and 2 either with a partner or individually. Starting with problems 3 and 4 in the concept development, the lesson has students learning two new methods for fractions of a fraction. The Exit Ticket will be a good check for mastery of the rectangular fraction model and understanding of the concepts/methods being taught.

- Lesson 16: Consider doing both fluency activities; there is no application problem. In this lesson, the concept development is the problem set, but starts with problem 2. It is suggested teachers model problem 2 because students are being introduced to how to solve a problem using a tape...
diagram of 2 different whole-part situations. Problems 1-3 will be good guided practice after the model; problem 5 comes next (it may need to be modeled, depending on how students did with problems 1-3; it could also be a guided practice). Problems 4-6 are additional practice (independent or with a partner); problem 7 could be an extension for students who are demonstrating proficiency. The Exit Ticket is a good check for understanding for previous lessons.

- Lesson 17: Consider using “Write Fractions as Decimals” and “Multiply Whole Numbers by Decimals” as fluency practice. For concept development, teachers will need to make millionths-thousandths place value charts for students (template located in the lesson); students will use this chart because they will be multiplying whole numbers by decimals. Once students feel comfortable using the place value chart to multiply whole numbers by decimals, teachers can then shift to the strategy of converting the decimal to a fraction and multiplying the fraction and then converting their product from the fraction multiplication back to a decimal. Students can also use the rectangular fraction model in this lesson.

- Lesson 18: Consider using the Sprint (Multiplying Fractions) for fluency practice. With this concept development, students will be learning and practicing how to change decimals to fractions and writing decimals in unit form. For example: 3.2 written as 32 tenths. This allows students to control pieces of the place value chart without directly using it. The Exit Ticket will be a good check for understanding because students must solve problems using both unit and fraction forms.

- Lesson 19: In this lesson, the application problem comes first, but does not have to be taught that way. Consider using both fluency activities. Students may want to have their PARCC Mathematics Reference sheet, as this lesson involves conversions.

- Lesson 20: Consider using “Count by Fractions” and “Convert Measures” for fluency practice. Students may want to have their PARCC Mathematics Reference sheet, as this lesson involves conversions. The Exit Ticket will be a good check for understanding of conversions.

- Lesson 21: Consider doing the Sprint as a possible station for this day; do “Find the Unit Conversion” as fluency practice. Problem 1 in Concept Development is independent work (it builds on skills previously taught); there is practice delineated prior to problem 2 to practice converting fractions to decimals; problem 2 deals with converting fractions to decimals. Teachers may do the additional practice with students who do not grasp the concept quickly.

- Lesson 22: Consider doing “Find the Unit Conversions (MD2)” for fluency practice. For the application problem, it is suggested to give students the hint of converting 6/8 into fourths so they can change it into decimal form to solve. Students are determining reasonableness of their answers in the concept development by first determining the value of their product as being greater than or less than 1 and ½.

- Lesson 23: Consider doing “Compare Decimal Numbers” and “Write Fractions as Decimals” for fluency practice. With the application problem, teachers may want to begin using the word scaling when discussing the problem because the term scaling will be discussed and used in the concept development. Students are comparing the value of the product to the value of one of the factors to first determine the reasonableness of their answers, and then solve.

- Lesson 24: Consider using “Write the Scaling Factor” as fluency; there is no application problem. The concept development is the problem set. The Exit Ticket will be a good formative check for understanding of all previous lessons.

- Lesson 25: Consider using “Multiply Fractions by Decimals” for fluency practice. For this lesson, it is encouraged to give students several sheets of paper and scissors to help with the modelling. Students will use their model along with a number line to see the fractional parts of a whole. This concept development is all multi-step word problems, so it is possible this lesson will take more than one day.

- Lesson 26: Consider using “Divide Whole Numbers by Fractions” for fluency practice. The application problem is a multi-step problem; a hint teachers might want to give is: to find the number of volunteers needed, students need to ask themselves: how many ¼ miles are in 5 miles? With the concept development, it may be easier to do problem 2 first as a model to help students understand how to use tape diagrams when dividing a fraction by a whole number. It’s important not to teach the trick of multiplying by the reciprocal of the second number. The Exit Ticket will be a good check for understanding.

- Lesson 27: Consider doing all three fluency activities, as they address NF7. There is no application problem for this lesson. The problem set is the concept development for this lesson. The Exit Ticket will be a good check for understanding as an independent activity.

- Lesson 28: Consider doing both fluency activities; there is no application problem. For this lesson, it is recommended that teachers skip, in concept development (also questions 1 and 2 on problem set) numbers 1 and 2; instead focus on problems 3 and 4.
• Lesson 29: Consider doing both fluency activities; they will benefit students. The application problem is suggested to be a collaborative activity for students.
• Lesson 30: Consider doing the Sprint (Divide Whole Numbers by Fractions and Fractions by Whole Numbers) for fluency practice. It is suggested for the application problem to be used to teach multiple methods for solving division problems and defending their answers. This lesson teaches students to rewrite division expressions as fractions in order to represent their answer as a whole number. ***Look at the lesson for further clarification. The Exit Ticket will be a good check for understanding.
• Lesson 31: Consider using “Divide Decimals” for fluency practice. For the application problem, it is suggested to encourage students to use a visual model if needed. Teachers will be talking about the methods students can use to divide decimals; it is important to show multiple methods for doing so.
• Lesson 32: If there is time and you feel students are able to extend concepts taught in this module, this lesson will be appropriate, otherwise: OMIT.
• Lesson 33: If there is time and you feel students are able to extend concepts taught in this module, this lesson will be appropriate, otherwise: OMIT.

Common Student Misconceptions
Students may believe that multiplication always results in a larger number.
• Using models when multiplying with fractions will enable students to see that the results will be smaller.
Additionally, students may believe that division always results in a smaller number.
• Using models when dividing with fractions will enable students to see that the results will be larger.
Students may confuse multiplication and division of fractions when solving problems.
• One example to help with this misconception is to draw pictures.
• Knowing the number of groups/shares and finding how many/much in each group/share.
• Four students sitting at a table were given 1/3 of a pan of brownies to share. How much of a pan will each student get if they share the pan of brownies equally? Students will use a circle for thirds and a rectangle for fourths when comparing fractions with thirds and fourths. Remind students that the representations need to be from the same whole models with the same shape and size.

• The diagram shows the 1/3 pan divided into 4 equal shares with each share equaling 1/12 of the pan.

Students may find it helpful to address multiplication of fractions using “of.”
• Example: Three-fourths of the class is boys. Two-thirds of the boys are wearing tennis shoes. What fraction of the class are boys with tennis shoes? This question is asking what 2/3 of 3/4 is, or what is 2/3 x 3/4. In this case you have 2/3 groups of size 3/4. (a way to think about it in terms of the language for whole numbers is 4 x 5 you have 4 groups of size 5).

Sample Leveled Number Talk
Fractions
½ + ¼ = (100% accessibility for all students)
1 ½ + 4 ¼ = (90% accessibility for students)
1.25 + 4.50 = (75-85% accessibility for students)
Number Talk levels should build on the same objective throughout the number talk
• Five Minute Math (small book from EDM) is a great place to start for Number Talk ideas.
• Some of the Mental Math and Reflexes at the beginning of each lesson can be used as additional ideas for Number Talks.
• Data from AMC and RNI should be used as a way to develop appropriately leveled number talks.

Numeracy Time:
Continue to use data to introduce and develop numeracy stations. Ongoing evaluation and checks need to be in place to help support student growth.
• Assign and re-assign student to stations as needed
• Invitational groups can also be called during the numeracy time for added student support.
• Additional station ideas available from your math coach
• Establish routines and procedures for EDM games and Perspectives stations. Develop an environment that students can be independently working and accountable for their learning to maximize this time.
• **EDM Games:** Name That Number, Division Dash, Divisibility Dash, Division Top-It (3-Digit Dividends), First to 100, Algebra Election, Multiplication Baseball
• Developing Number Concepts Book 3: AMC Concepts 8 and 9 (Based on data use other AMC books as needed)
• Understanding Numbers: Addition and Subtraction, Place Value and Decimals
• Van de Walle: Chapter 7

**Important REMINDER regarding multiplication/division fact mastery:** Students who have completed Concept 9, but are not fluent with multiplication and division facts should be given the opportunity to develop their strategies with multiplication and division during numeracy using district approved resources, (e.g. Kathy Richardson and VanDeWalle)
Module 5: Addition and Multiplication with Volume and Area  
Using EngageNY Module 5, EngageNY Module 5 Topic C  
See Instructional Notes for more details.

Focus Lens(s): Volume, Area, and Geometric Figures  
Length of Unit 40 days  
February 26th – April 28th

Essential Questions address the big ideas and should be the focus for the entire Module. Students will work towards making sense of concepts in order to answer the question by the end of instruction. The essential question should be a part of every day’s lesson. Posting is helpful but it’s the daily student debrief that allows students to reflect on the essential question.

**Essential Questions:**
1. Why is volume represented with cubic units and area represented with square units?
2. How can attributes help us classify shapes?

<table>
<thead>
<tr>
<th>Technical Vocabulary:</th>
<th>Academic Vocabulary:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base, cubic units, height, unit cube, attribute, square units</td>
<td>Volume, angle, area, attribute, cube, face, parallel lines, parallelogram, polygon, quadrilateral, rectangle, rectangular prism, rhombus, right angle, trapezoid</td>
</tr>
</tbody>
</table>

**Common Core Standards**

**DISTRICT 6 PRIORITY STANDARDS**

**Major Clusters**

**Supporting Clusters**

**Additional Clusters**

<table>
<thead>
<tr>
<th>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.</th>
<th>Unit Lesson 16-21</th>
<th>Mathematical Practice 1, 3, 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.G.4 Classify two-dimensional figures in a hierarchy based on properties.</td>
<td>Unit Lesson 16-21</td>
<td>Mathematical Practice 1, 3, 6</td>
</tr>
</tbody>
</table>
5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
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.

5.NF.6 C. SOLVE REAL WORLD PROBLEMS INVOLVING MULTIPLICATION OF FRACTIONS AND MIXED NUMBERS, E.G., BY USING VISUAL FRACTION MODELS OR EQUATIONS TO REPRESENT THE PROBLEM.

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.
   5.MA.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.

5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

5.MD.5 RELATE VOLUME TO THE OPERATIONS OF MULTIPLICATION AND ADDITION AND SOLVE REAL WORLD 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.
   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.
   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.
### Performance Tasks

**End of Module Common Assessment - Module 5 Assessment:**
- Scanned into School City
- Should be in addition to individually developed formative assessments

**Suggested Checks for understanding:** Teachers may use exit tickets within EngageNY lessons.

### Resources

**Engage NY:** [https://www.engageny.org/resource/grade-5-mathematics](https://www.engageny.org/resource/grade-5-mathematics)

**Van de Walle**

**EDM Games**

**EDM 5 minute math**

**Math Perspectives**


Additional lesson videos [https://learnzillion.com/](https://learnzillion.com/)

Additional practice includes videos [www.tenmarks.com](http://www.tenmarks.com)

Additional Exit tickets or homework [https://grade5commoncoremath.wikispaces.hcpss.org/](https://grade5commoncoremath.wikispaces.hcpss.org/)

Additional Practice includes videos [https://www.khanacademy.org/math/cc-fifth-grade-math](https://www.khanacademy.org/math/cc-fifth-grade-math)
Instructional Notes

These are recommended instructional ideas to accomplish mastery within modules. Math time will be divided between Number Talks, Numeracy Time with DNC Stations, and lessons from Engage NY. The length of module is given (number of days), but teachers need to be aware of their students’ mastery of concepts/standards throughout a module, using formative assessments, in order to determine pacing for their class.

Unit Highlights:
- Mathematical practices are introduced during the first unit but should be integrated in daily instruction throughout the year.
- Word problems may be practiced using ELD strategies. (eg. Collaborative posters, four corners, clarifying bookmark, etc.)
- This is a critical unit for formative assessments. Depending on your class and students’ performance you will want to emphasize certain aspects of the unit. There are 37 days for suggested instruction by EngageNY; however, there are 37 days given for the unit instruction. In addition, be aware of when CMAS will take place to make sure students have mastered this unit before CMAS-mathematics is administered.
- In EngageNY the student-teacher conversation is to be used as an example conversation not a script.
- Exit tickets may be used as a formative assessment.
- Homework pages are optional for extra practice.
- It’s important that students represent the problems they are solving, have a visual image of the “why” behind the algorithm, and can explain their reasoning.

Lesson Notes:
- Lesson 1: Consider “Find the Area” for fluency practice. This lesson may be a 2 day lesson. For this lesson, students will need: centimeter cubes, a ruler, lesson 1 Template 1, and lesson 1 Template 2. Some pieces of the concept development can be done in partners, not just whole group. Note: Teacher model of explanation is essential to build a foundation for Lesson 3 when students will explore layering for volume.
- Lesson 2: Consider “Find the Area” and “Find the Volume” for fluency practice. For application problem, it may be helpful to allow students to use Lesson 1 Template 2, as well as centimeter cubes to solve. Centimeter cubes will also be needed for concept development. The concept development is the first problem on the problem set, so students will need a copy of the problem set, as well as the Lesson 2 Template. The exit ticket will be a good check for understanding.
- Lesson 3: Consider “Find the Volume” for fluency practice. For the application problem, it is strongly suggested teachers bring in an Ice Cube Tray with 16 slots for students to use as a visual to help them solve the problem. Centimeter cubes (unifix cubes) are needed for the concept development; it is critical for students to visualize the layers before drawing the layers. The Exit Ticket will be a good check for understanding of how well students understand the layering concept. Note: Lesson 3 Template will be helpful during concept development.
- Lesson 4: Consider “Find the Area” and “Find the Volume” for fluency practice. The lesson 3 template may be needed for concept development; this concept development is an extension of the layering from lesson 3.
- Lesson 5: Consider “Count by Cubic Centimeters” and “Find the Volume” for fluency practice; there is no application problem for this lesson. This lesson deals with the difference between packing versus filling when finding volume (liquid versus solid volume), so realia will be helpful for students to manipulate (i.e. water tight container to have students practice packing and then filling to discuss the difference in experience and strategy).
- Lesson 6: Consider “Count by Cubic Centimeters” and “Find the Volume” for fluency practice. For concept development, the centimeter cubes, as well as the dot paper template may be needed for some students. Problems 3 and 4 discuss finding the volume of combined structures and how to do that. The application problem comes at the end of the concept development and could be used collaboratively.
- Lesson 7: Consider using both fluency activities for this lesson. The concept development is the problem set. It might be beneficial to have students complete the problem set with a partner and pull invitational groups for students who are still struggling with the concept of volume or with understanding of word problems.
- Lesson 8: This lesson can be omitted or used as an extension for students who are showing proficiency on the concepts taught so far.
- Lesson 9: This lesson can be omitted or used as an extension for students who are showing proficiency on the concepts taught so far.
- Optional: Take Mid-Module assessment, spend 1 day taking the assessment, grade the assessment before the next day, use day 2 to remediate skills, this is intended for students in the range of percentiles.
Common Misconceptions 5.NF.4b and 5.NF.6

Students may believe that multiplication always results in a larger number. Using models when multiplying with fractions will enable students to see that the results will be smaller.

Additionally, students may believe that division always results in a smaller number. Using models when dividing with fractions will enable students to see that the results will be larger.

5.MD.3-5

Students are unsure as to which units to use to measure volume because they are not sure what they are measuring. Also, they may confuse the need to find volume with area.

5.G.3-4

Students think that when describing geometric shapes and placing them in subcategories, the last category is the only classification that can be used.
Module 6: Problem Solving with the Coordinate Plane
See Instructional Notes for more details.

Focus Lens(es): Geometry Explorations and Real World Coordinate Planes

Length of Unit: 18 days
April 29th – May 24th

Essential Questions address the big ideas and should be the focus for the entire Module. Students will work towards making sense of concepts in order to answer the question by the end of instruction. The essential question should be a part of every day’s lesson. Posting is helpful but it’s the daily student debrief that allows students to reflect on the essential question.

Essential Questions:
1. How does using a coordinate grid help us solve real world problems?
2. How might a coordinate grid help me understand a relationship between two numbers?

Technical Vocabulary:
Coordinate, ray, line segment, perpendicular, vertical, horizontal, intersection, regular polygons, parallel

Academic Vocabulary:
Graph, label, describe, generate

Common Core Standards
DISTRICT 6 PRIORITY STANDARDS

Major Clusters
Supporting Clusters
Additional Clusters

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).

10.4, 10.6, 10.7
1, 6
5.G.1

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.

10.4, 10.6
1, 4, 6
5.G.2

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.

3.7
3, 7
5.G.3

G.4 Classify two-dimensional figures in a hierarchy based on properties.

3.7
2, 3, 6
5.G.4

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.

10.3, 10.4, 10.6
1, 6, 7, 8
5.OA.3
Performance Tasks

End of Module Common Assessment-Module 6 Assessment:
- Scanned into School City
- Should be in addition to individually developed formative assessments

Suggested Checks for understanding: Teachers may use exit tickets within EngageNY lessons.

Resources
EngageNY- https://www.engageny.org/resource
“I Can” statements and exit tickets http://www.fwps.org/tfl/math-ccss/5th-grade-math-ccss/
ENY homework help http://www.oakdale.k12.ca.us/cms/page_view?d=x&piid=&vpid=1401784828612
Additional lesson videos https://learnzillion.com/
Additional practice includes videos www.ienmarks.com
Additional Exit tickets or homework https://grade5commoncoremath.wikispaces.hcpss.org/
Additional Practice includes videos https://www.khanacademy.org/math/cc-fifth-grade-math

Instructional Notes

These are recommended instructional ideas to accomplish mastery within modules. Math time will be divided between Number Talks, Numeracy Time with DNC Stations, and lessons from Engage NY. The length of module is given (number of days), but teachers need to be aware of their students’ mastery of concepts/standards throughout a module, using formative assessments, in order to determine pacing for their class.

Unit Highlights:
- There are two parts to this unit. Part one is Geometry Exploration and part two is Coordinate Planes-Real World Application using EDM.
- Mathematical practices are introduced during the first unit but should be integrated in daily instruction throughout the year.
- Word problems may be practiced using ELD strategies. (eg. Collaborative posters, four corners, clarifying bookmark, etc.)
- Math boxes are a daily expectation used as a tool to support repeated practice over time. Math boxes chosen should be based on previous instruction and the needs of the students.

Lesson Notes:
- Lesson 1: Consider “Find the Missing Number on a Number Line” for fluency practice. This lesson could be used as a review of number lines and fractional parts on a number line (CCSS.5.G.1), but this lesson is an optional lesson and more of a review of standards previously taught.
- Lesson 2: Consider “Find the Missing Number on a Number Line” for fluency practice. The application problem will be a lead into today’s lesson on parallel and perpendicular lines. Teachers need to print Coordinate Plane template located at the end of this lesson for students to use during the concept development. The exit ticket would be a good check for understanding of how to read a coordinate grid and how to plot points from a given set of points.
- Lesson 3: Consider “Name Coordinates on a Coordinate Grid” for fluency practice. Teachers may want to print the application problem for students to make it easier for them to see and solve. Students will need a copy of the coordinate plane template from this lesson for concept development or teachers could use the problem set for the concept development for this lesson. The exit ticket would be a good formative assessment to check for understanding.
- Lesson 4: Consider “Multiply” and “Name the Parts on the Coordinate Grid” for fluency practice. Students will be “playing” Battleship during this lesson. This lesson could be optional or taught and used as a station (teachers will need to print the problem set pages for the rules and game
templates).

- **Lesson 5:** Consider “Count by Decimals” and “Decimals on Number Lines” for fluency practice. This lesson is focusing on patterns within coordinate pairs. Students will need the coordinate plane template from this lesson.

- **Lesson 6:** Consider “Find the Missing Number on a Number Line” for fluency practice. This lesson teaches the language to describe the relationship between coordinate points using “distance from”. Students will need copies of the Coordinate Plane Template from this lesson for the concept development. Having students verbalize the location of points using the language taught in this lesson, as well as writing the relationship, would be beneficial.

- **Lesson 7:** Consider “Name Coordinates” for fluency practice. Students will need copies of the Coordinate Plane Template from this lesson for the concept development.

- **Lesson 8:** Consider “Sprint: Multiply Decimals by 10, 100, and 1,000” for fluency practice. Students will need copies of the coordinate plane template from this lesson for the concept development.

- **Lesson 9:** Consider “Add and Subtract Decimals” and “Plot Points on a Coordinate Grid” for fluency practice. Students will need copies of the coordinate plane template from this lesson for the concept development. The exit ticket would be a good check for understanding for concepts taught in the last two lessons.

- **Lesson 10:** Consider “Add and Subtract Decimals” for fluency practice. Teacher may want to use the concept development to extend instruction in small invitational groups for students who may need more guidance, but have students who are demonstrating proficiency work on the problem set with a partner or in small groups.

- **Lesson 11:** Consider “Sprint: Round to the Nearest One” for fluency practice. Teacher may want to use the concept development to extend instruction in small invitational groups for students who may need more guidance, but have students who are demonstrating proficiency work on the problem set with a partner or in small groups.

- **Lesson 12:** This is an optional lesson.

**Optional:** Take Mid-Module assessment, spend 1 day taking the assessment, grade the assessment before the next day, use day 2 to remediate or apply; this is intended for driving instruction moving forward.

- **Lesson 13:** Omit

- **Lesson 14:** Consider “Multiply Multi-Digit Whole Numbers” for fluency practice. Concept development should start with “Problem 2: identify coordinate pairs that create parallel lines” (skipping other problems because they have to do with angles and students are not assessed on angles) Students will need copies of coordinate plane template from this unit.

- **Lesson 15:** Omit

- **Lesson 16:** This is an optional lesson, however, teachers may want to use portions of this lessons problem set as practice and the exit ticket as a formative assessment (concepts previously taught).

- **Lesson 17:** Omit

- **Lesson 18:** Teachers may want to include some additional fluency practice at the beginning of this lesson. The fluency practice within the lesson does not match the priority standards. This is not an essential lesson, but teachers can use it to have students practice plotting and naming points.

- **Lesson 19:** Consider “Sprint: Make Larger Units” for fluency practice. Teachers may want to have copies of the application problem in order for students to complete the task. Concept development for this lesson can be the problem set and the exit ticket would be a good independent practice for students to show their understanding of how to interpret data presented in a line graph.

- **Lesson 20:** Consider “Sprint: Subtract a fraction from a whole” for fluency practice. For this lesson, the concept development is the problem set. Teachers may want to let students work in small groups or partners and circulate to give feedback.

**End of Module Assessment should be given after Lesson 20.**

- **Topics E and F** are review of standards taught throughout the year and should be used if teacher has additional time at the end of the year.

Use this additional time to continue to develop student number sense.
Common Student Misconceptions

5.G.1.2

When playing games with coordinates or looking at maps, students may think the order in plotting a coordinate point is not important. Have students plot points so that the position of the coordinates is switched. For example, have students plot (3, 4) and (4, 3) and discuss the order used to plot the points. Have students create directions for others to follow so that they become aware of the importance of direction and distance.

**polygons** - a closed plane figure formed from line segments that meet only at their endpoints.
**quadrilaterals** - a four-sided polygon.
**rectangles** - a quadrilateral with two pairs of congruent parallel sides and four right angles.
**rhombi** - a parallelogram with all four sides equal in length.
**square** - a parallelogram with four congruent sides and four right angles.

Possible student solutions:

```
Polygons
  ↓
Quadrilaterals
  ↙
Rectangles  Rhombi
  ↙
Square
```

**quadrilateral** - a four-sided polygon.
**parallelogram** - a quadrilateral with two pairs of parallel and congruent sides.
**rectangle** - a quadrilateral with two pairs of congruent, parallel sides and four right angles.
**rhombus** - a parallelogram with all four sides equal in length.
**square** - a parallelogram with four congruent sides and four right angles.

Possible student solution:

```
Quadrilateral
  ↘
Parallelogram
  ↘
Rectangle  Rhombus
  ↘
Square
```

Example:

Students should be able to reason about the attributes of shapes by examining:

- What are ways to classify triangles?
- Why can’t trapezoids and kites be classified as parallelograms?
- Which quadrilaterals have opposite angles congruent and why is this true of certain quadrilaterals?, and
- How many lines of symmetry does a regular polygon have?
• When playing games with coordinates or looking at maps, students may think the order in plotting a coordinate point is not important.
  ◦ Have students plot points so that the position of the coordinates is switched. For example, have students plot (3, 4) and (4, 3) and discuss the order used to plot the points.
  ◦ Have students create directions for others to follow so that they become aware of the importance of direction and distance.

Sample Leveled Number Talk

**Multiplication and extensions**

50 * 20 = (100% accessibility for all students)
125 * 25 = (90% accessibility for students)
530 * 121 = (75-85% accessibility for students)

**Numeracy Time:**
Continue to use data to introduce and develop numeracy stations. Ongoing evaluation and checks need to be in place to help support student growth.

- Assign and re-assign student to stations as needed
- Invitational groups can also be called during the numeracy time for added student support.
- Additional station ideas available from your math coach
- Establish routines and procedures for EDM games and Perspectives stations. Develop an environment that students can be independently working and accountable for their learning to maximize this time.
- **EDM Games**
  - Developing Number Concepts Book 3: AMC Concepts 8 and 9 (Based on data use other AMC books as needed)
  - Understanding Numbers: Addition and Subtraction, Place Value and Decimals
  - Van de Walle Chapter 10

**Important REMINDER regarding multiplication/division fact mastery:** Students who have completed Concept 9, but are not fluent with multiplication and division facts should be given the opportunity to develop their strategies with multiplication and division during numeracy using district approved resources, (e.g. Kathy Richardson and VanDeWalle)