i3 Intensive Intervention in Mathematics

Mathematics Curriculum Materials Crosswalk

Math Expressions, Connecting Math Concepts, and Early Numeracy Intervention

GRADE 05

Practitioners have identified an important problem with the materials they use to teach math in different settings: Core and intervention programs do not always use common math practices or have a common math vocabulary. Understanding math vocabulary is essential for students to perform well on **common** assessments, such as end-of-year, high-stakes tests, because the items on these tests often use vocabulary that students must understand in order to apply their conceptual and procedural math knowledge.

The structure of core and intervention materials differs because they are designed to meet the learning needs of different audiences. **Core programs** are developed using research-based instructional strategies that promote learning math concepts for most students in each classroom; **intervention programs** use evidence-based practices that target specific skills for students who do not respond to the core program. Furthermore, intervention programs often use repetition, a standardized lesson format, evidence-based instructional practices, and purposeful lesson pacing to teach foundational math skills (e.g., counting, fact mastery) that students need to access grade-level content. Core programs, on the other hand, use differentiated lesson formats and may give teachers greater flexibility in teaching a comprehensive, grade-level curriculum that targets several math concepts. Although the different structures of core and intervention programs is purposeful, there can be points of misalignment that cause confusion for students who receive both. When considering vocabulary instruction, for example, teachers should keep in mind that students in intervention settings may have difficulty mastering content and may exhibit low performance because they have not received explicit instruction in math vocabulary or they fail to make connections between math vocabulary terms that differ between the intervention and core programs. This is particularly concerning given that these students are already struggling to master grade-level content.

Math Expressions is a commonly used **core** math curriculum that is intended for daily instruction. The program includes scaffolded materials and differentiated activities. *Connecting Math Concepts (CMC)* originally was developed as a core math curriculum. However, as part of a tiered system of support, it is often used as a core replacement program for struggling students (e.g., low Tier 2 and Tier 3 students) and recently has been used more frequently in intervention settings, rather than as a core math curriculum, because of its explicit and systematic design. Although the publishers' materials and resources for all programs report that they are completely aligned to national standards in math across grades, the standards do not

specify *how* teachers should deliver content. As a result, programs rely on different math practices and vocabulary to teach the same concepts. This can be a source of confusion for teachers of students who receive instruction in more than one math setting.

The purpose of this crosswalk is to identify potential points of inconsistency among *Math Expressions* and *CMC* so that teachers can plan to address them in their instruction. Our intent in creating this crosswalk is not to suggest that one program is good or that another is bad; as described earlier, they are designed to serve different purposes. Rather, the intent is to support better alignment between the programs, which may be more efficient, and help students more successfully participate in math instruction across settings.

This crosswalk provides the following information:

- How *Math Expressions* and *CMC* are similar and different according to the Standards for Mathematical Practice (referred to as *math practices*)
- Evidence-based strategies that teachers and interventionists could use to align instruction across *Math Expressions* and *CMC* while maintaining fidelity to the programs
- Analysis of the math vocabulary that *Math Expressions* and *CMC* use to teach concepts across different domains of math.
- Recommendations for teachers and interventionists regarding how to address differences in math vocabulary across *Math Expressions* and *CMC*
- Where to locate additional resources

Information about how the *Math Expressions* and *CMC* were coded according to the eight math practices and math vocabulary to complete the crosswalk is provided in Appendix A.

Core and Intervention Materials Crosswalk: Grade 5

As noted, although *Math Expressions* and *CMC* are all aligned to national math standards, these programs serve different purposes in school settings. For students who receive instruction in both core and intervention, it is critical that teachers acknowledge differences and implement strategies that can help bridge the gaps between math programs.

Standards for Mathematical Practice

Standards specify what content students are expected to *learn* but not how educators should *deliver* that content. One way to bridge the gap between different programs is to consider how programs use different math practices to teach the same concepts. Table 1 illustrates the similarities and differences among *Math Expressions* and *CMC* according to eight math practices that **teachers** can use in their instruction when they follow the program script. The program received a ✓ for the math practice if the materials included at least one indicator for the math practice. Therefore, even if a program received ✓ in the table below, this does not indicate that the program met *all* indicators for the practice. (For more information on how each program was scored using the Elementary Mathematics Specialists & Teacher Leaders (EMS & TL, 2012) rubric, see Appendix A. For information on where to locate the rubric, see the Additional Resources for Teachers section.)

Table 1. Math Practice Standards Rubric: Teacher Practices

Practice	Math Expressions	CMC
Make sense of problems and persevere in solving them	✓	✓
Attend to precision	✓	✓
Reason abstractly and quantitatively	✓	✓
Construct viable arguments and critique the reasoning of others	✓	
Model with mathematics	✓	✓
Use appropriate tools strategically	✓	✓
Look for and make use of structure	✓	✓
Look for an express regularity in repeated reasoning	✓	✓

Note. CMC is Connecting Math Concepts.

Table 2 illustrates the similarities and differences among *Math Expressions* and *CMC* according to the eight math practices and how **students** can engage with the practices.

Table 2. Math Practice Standards Rubric: Student Practices

Practice	Math Expressions	CMC
Make sense of problems and persevere in solving them	✓	✓
Attend to precision	✓	✓
Reason abstractly and quantitatively	✓	✓
Construct viable arguments and critique the reasoning of others	✓	
Model with mathematics	✓	✓
Use appropriate tools strategically	✓	✓
Look for and make use of structure	✓	✓
Look for and express regularity in repeated reasoning	✓	✓

Note. CMC is Connecting Math Concepts.

The results of the crosswalk comparing *Math Expressions* and *CMC* on the eight math practices indicate that although the programs teach similar content, they do not always use the same math practices to deliver the content. To bridge the gap between instruction occurring in core and intervention settings, teachers and interventionists should consider the following recommendations from resources such as the What Works Clearinghouse Practice Guides (Gersten et al., 2009; Woodward et al., 2012), *Designing Effective Mathematics Instruction: A Direct Instruction Approach* (Stein, Kinder, Rolf, Silbert, & Carnine, 2018), and *Explicit Instruction: Effective and Efficient Teaching* (Archer & Hughes, 2010).

Recommendations for Core Instruction Settings

Teachers who support students in core settings may want to consider the following recommendations to create a smooth transition for students who are receiving core instruction and instruction in other settings:

- **Try the intervention or differentiated instruction materials that accompany the core program.** For example, each lesson in the *Math Expressions* curriculum includes activities for students who are receiving intervention, are on grade level, or may need a challenge. The activities for students who are receiving intervention provide opportunities for struggling students to access the general education curriculum in a meaningful way. These materials can be used for students who receive intervention and may still struggle with grade-level materials in core instruction. Teachers also should collect progress-monitoring data for these students to determine if the instruction is meeting students' needs or if it needs to be adjusted.

- **Use systematic and explicit instruction.** All students, including those who struggle with math, benefit from systematic and explicit instruction (Archer & Hughes, 2010). Many of the components can be easily incorporated into daily core instruction for all students. Some examples of systematic and explicit instruction include the following:
  - **Preteach:** Students who require intervention also may benefit from teachers preteaching concepts that will be introduced in core instruction.
  - **Model:** Teachers should model concepts and problem-solving processes for students using a variety of examples and solution strategies. One strategy that teachers can use to model how they visualize their own math thinking is through a think-aloud process. During this process, teachers verbally demonstrate how they approach a problem, reflect on the problem-solving process, answer questions, and check their work.
  - **Explicitly teach new information:** Explicitly teach procedures or vocabulary that differ between programs to ensure that all students can access the skills taught in core instruction.
  - **Provide multiple opportunities for practice, with feedback:** Give students ample opportunities to practice new skills and to review previously learned skills with ongoing modeling and feedback.
  - **Provide immediate corrective feedback:** When students make an error, provide immediate, specific, and corrective feedback that focuses on the task or process rather than the student. Model the correct response using the think-aloud strategy to explain your reasoning. Then have the students practice, provide immediate feedback, and check in frequently for understanding to ensure they are not practicing errors.
  - **Check for understanding:** Check frequently for understanding using formal and informal formative assessments, such as exit-slip activities, monitoring during group or partner activities, questioning, weekly progress monitoring, or other curriculum-based assessments.
  - **Enhance students' conceptual understanding.** *CMC* lessons give students ample practice opportunities to master and become fluent with math skills through purposefully paced and sequenced lessons. The tradeoff, however, is that compared to *Math Expressions*, this program may provide fewer opportunities to explore and master conceptual understanding. To fill this gap, teachers can do the following:
    - » Preteach concepts so that students have prerequisite knowledge before a formal classroom lesson and provide additional opportunities to continue to practice concepts during small-group, differentiated instructional time.

- Increase the number of opportunities that students have during core instruction to explore math concepts, recognize relationships between concepts, and use multiple representations to demonstrate how to think flexibly about concepts. It is also important to increase opportunities after students have developed some procedural fluency so that they may practice using the correct strategies alongside different problem types.
- Pair stronger math students with struggling students for partner work as a method of increasing opportunities to practice a concept and receive feedback.

Recommendations for Intervention Settings

Teachers who support students in intervention settings can implement a program (such as *CMC*) and maintain fidelity to the program even if they supplement scripted lessons with other evidence-based practices and instructional strategies. Teachers may consider the following strategies:

- **Use concrete and pictorial representations.** Using concrete and pictorial representations are evidence-based practices that may produce positive outcomes for all students. Although *CMC* does not include the use of concrete representations, students are likely to use these materials in their core classes. If students use representations during *CMC*, the transition between core and intervention programs may be smoother. Thus, interventionists may consider the following:
  - Introducing common math manipulatives and relevant vocabulary to enable students to use different representations to make sense of quantities, show the relationships between numbers, and show different solution strategies
- **Use motivational strategies.** Although motivational strategies *alone* may not increase student performance, they are components that can be easily incorporated into any intervention program (see the Additional Resources for Teachers section for more information). Powerful motivational tools to which students may respond positively include verbal praise, recognition, and other rewards. Interventionists can incorporate the following:
  - Engagement- and completion-contingent rewards and rewards that recognize milestone achievement (e.g., finishing a math unit). Teachers should note that the timing of rewards and the type of reward system that is effective may vary by student, group of students, or task.
  - Reinforcement for effort in completing a task and remaining engaged in a lesson.

  - Opportunities for students to regularly chart their progress-monitoring data and to set goals.

- **Embed opportunities for students to discuss their ideas.** Although *CMC* is a scripted program, affording additional opportunities for students to discuss and rationalize their thinking may help them participate more fully in core instruction. Thus, interventionists may consider embedding opportunities to help students communicate their ideas clearly. Such opportunities may include questioning, modeling how to use think-aloud procedures, and demonstrating how to check work for errors.

  Opportunities for students to discuss their thinking could occur: (a) if there are a few minutes left in a class period and the daily lesson is finished; (b) individually with a teacher if a student finishes an assessment early or other students are catching up on lessons because of absences; (c) during planned small-group or partner work activities.

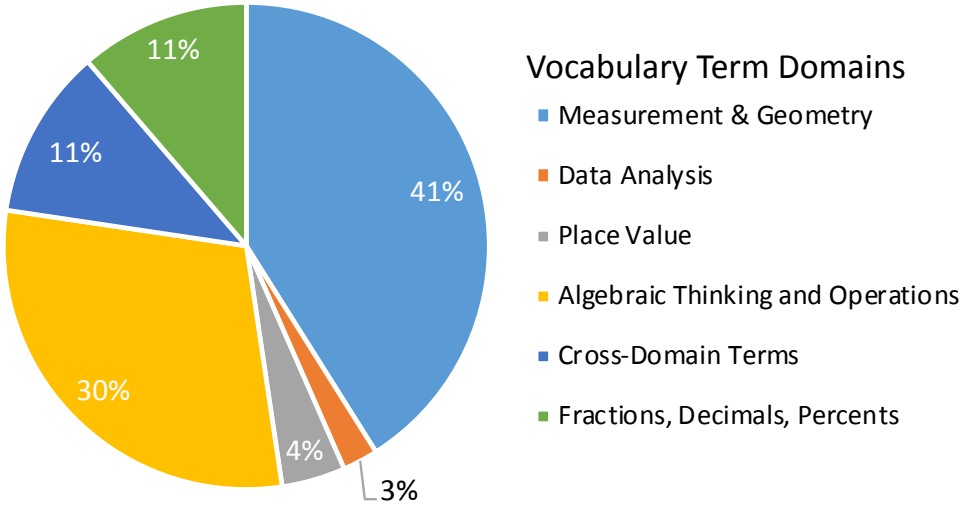
  During these sessions, students should practice:

  - Using correct vocabulary to construct arguments;
  - Communicating and explaining their mathematical reasoning using objects, drawings, or diagrams;
  - Deciding whether or not mathematical explanations make sense (using either their own work or that of a peer); and
  - Engaging in partner work and activities to practice communicating ideas and solution strategies.

Math Vocabulary

Vocabulary is a critical component of math instruction because students must demonstrate their understanding of math concepts by communicating problem-solving strategies with other students, with their teachers, and on math assessments. Although *Math Expressions* and *CMC* are aligned to fifth-grade national standards, the programs differ in the math vocabulary they use to teach concepts in the same math domain. Next, we report on the differences in vocabulary among the programs at the fifth-grade level, explain how vocabulary terms are categorized across different domains, and provide instructional recommendations to address these differences.

Figure 1. How Vocabulary Terms Are Categorized



There are 213 unique vocabulary terms included across *Math Expressions* and *CMC* fifth-grade curricula.[1] A summary of how all vocabulary terms are categorized across all programs is presented in Figure 1. As the chart shows, most vocabulary terms at the fifth-grade level are related to Measurement and Geometry (41%) and Algebraic Thinking and Operations (30%).

Of the 213 math vocabulary terms coded, *Math Expressions* includes 147 math terms and *CMC* includes 102 terms. Across *Math Expressions* and *CMC*, only 37 of the 213 terms (17.4%) appear in both curricula. Most of the terms found in both programs (15 of the 37) were related to Measurement and Geometry. Nine math terms related to Algebraic Thinking and Operations were found in both programs; however, across both fifth-grade programs, 63 terms were identified in this domain. This low level of overlap is problematic because as students progress through grade levels, skills continue to build on one another. Efforts to address these points of inconsistency across all math domains may help reduce confusion for students who receive instruction in core and intervention.

[1] Math Expressions explicitly list vocabulary words. *CMC* words were identified by reading through the lessons.

Math Expressions includes several terms that do not appear in the *CMC* program. It is important for students to know these terms to be able to access grade-level math content and standards taught in core settings. Table 3 presents a subset of terms most likely to be used across core programs, as well as likely to be problematic for students receiving intervention in fifth-grade. These are terms that *Math Expressions* explicitly teaches, but *CMC* does not. For a full list of math terms included in each program, see Appendix B.

Table 3. Select Math Terms Used in *Math Expressions* but Not *CMC*

Measurement and Geometry	Fractions, Decimals, and Percent	Operations and Algebraic Thinking	Multi-domain Terms
• acute angle	• common denominator	• additive	• benchmark
• closed	• decimal fraction	• area model	• composite
• congruent	• equivalent decimal	• comparison bars	• evaluate
• ordered pair	• unit fraction	• quotient	• term

Considerations for Vocabulary Instruction

Math Expressions and *CMC* use different vocabulary terms to teach and discuss similar concepts, which can be especially confusing for struggling students or English learner students. Following are a few considerations and strategies that core math teachers and interventionists should consider to ensure that students learn common math language.

- Coordinate how to (a) introduce consistent terms across programs, (b) informally assess whether students understand vocabulary terms, and (c) reteach terms.
- Preteach vocabulary terms to students receiving intervention before introducing the terms during core instruction.
- Create warm-up or independent work activities that focus on vocabulary. For example, on Mondays, students could complete activities (such as a Frayer Model diagram) for a vocabulary term that will be emphasized during that week's instruction. On Tuesdays, students could respond to a prompt that requires them to write a response using specific vocabulary terms, and so on. Teachers and interventionists could select the same terms to increase the practice opportunities for students receiving intervention to fully master.
- When providing students with opportunities to talk about their problem-solving process or ask questions, model and encourage the use of appropriate vocabulary terms.
- Create a math word wall to encourage all students to use precise terms.

- Incorporate math-themed books in instruction and make books available during center or free time, during independent reading, or as take-home material. (See the Additional Resources for Teachers section for a list of math-themed books.)

Conclusion

It is important to remember that no core or intervention program published to date will meet all students' instructional needs. *Math Expressions* and *CMC* serve different purposes and, thus, use different strategies. Teachers can maximize the potential for student achievement by strengthening the alignment between the programs by incorporating evidence-based math and instructional practices. Teachers and interventionists also will need to communicate about how they plan to incorporate vocabulary into instruction and discuss which vocabulary terms students should be explicitly taught to minimize confusion for students who receive both core instruction and intervention. Teachers can maximize alignment of math vocabulary in core and intervention programs with daily and easy-to-incorporate strategies, which may help all educators better meet the needs of students who struggle to learn math.

Additional Resources for Teachers

Standards for Mathematical Practice

To read more about the Standards for Mathematical Practice developed by the National Council for Teachers of Mathematics and the National Research Council, visit http://www.corestandards.org/Math/Practice/ for more information and https://www.nctm.org/Conferences-and-Professional-Development/Principles-to-Actions-Toolkit/Resources/5-SMPLookFors/ for a copy of a key look-for rubric.

Evidence-Based Math Practices

To learn more about evidence-based math practices that can be used to supplement a scripted math program, read the What Works Clearinghouse Practice Guides: https://ies.ed.gov/ncee/wwc/PracticeGuides.

Explicit and Direct Instruction Math Strategies

To learn more about designing supplemental math instruction and how to evaluate and modify other math programs that you may use, consider a reference such as *Designing Effective Mathematics Instruction: A Direct Instruction Approach* (5th ed.) by Stein, Kinder, Rolf, Silbert, and Carnine or *Explicit Instruction: Effective and Efficient Teaching* by Archer and Hughes.

Math Strategies, Lesson Plans, and Videos

To learn more about math strategies and view sample lesson plans and instructional videos, visit the National Center on Intensive Intervention: https://intensiveintervention.org/intervention-resources/mathematics-strategies-support-intensifying-interventions

Behavior Support Strategies

To learn more about behavior supports, visit the National Center on Intensive Intervention https://intensiveintervention.org/intervention-resources/behavior-strategies-support-intensifying-interventions and the Positive Behavioral Interventions & Supports Technical Assistance Center at the U.S. Office of Special Education Programs website: http://www.pbis.org/

Math-themed Literature

There are several examples of math-themed books that teachers may incorporate into their instruction to preteach, teach, and review math vocabulary. For examples of these books, visit http://www.teachhub.com/using-children%E2%80%99s-literature-motivate-math-lessons. (Note that this is not a comprehensive list.)

References

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Appendix A

Standards for Mathematical Practice

The authors coded each program for coverage of the eight math practices outlined by the National Council for Teachers of Mathematics (NCTM) process standards (NCTM, 2018) and the National Research *Adding It Up* report (2001): (1) make sense of problems and persevere in solving them; (2) reason abstractly and quantitatively; (3) construct viable arguments and critique the reasoning of others; (4) model with math; (5) use appropriate tools strategically; (6) attend to precision; (7) look for and make use of structure; and (8) look for and express regularity in repeated reasoning. The Elementary Mathematics Specialists and Teacher Leaders (EMS & TL) Project developed a rubric (EMS & TL, 2012) that included each of these math practices and indicators of practice (e.g., an indicator of the math practice "make sense of problems and persevere in solving them" for students was "understand the meaning of the problem and look for entry points to its solution"). The rubric included separate indicators for teachers and students. The rubric did not include equal numbers of indicators across math practices or between students and teachers (e.g., the teacher "attend to precision" code included two indicators, and the student "attend to precision" code included five indicators). Across all math practices, there were 31 student indicators and 23 teacher indicators. We coded *Math Expressions* and Connecting *Math Concepts (CMC)* separately with the rubric, indicating a "0" or a "1" for each math practice. To attain a score of 1 for a math practice, the program materials had to address or include at least one indicator from that math practice. If a program received a score of 0, no indicators were present for that math practice. For ease of discussing the results in a clear manner, we aggregated data for the indicators and report data only for the eight math practices.

Math Vocabulary

We also coded each program for math vocabulary terms. First, we coded *Math Expressions* because the materials explicitly list and define vocabulary terms in each lesson and unit. This list of vocabulary terms served as a reference for coding *CMC*. As we paged through the *CMC* materials, we marked "yes" or "no" for inclusion of each math vocabulary term that was already on the reference list from *Math Expressions*. As we encountered terms that were not in the *Math Expressions* reference list, we added the new terms from *CMC* to the full list of math vocabulary terms. After the lists for each grade level and program were finalized, we placed each term in one of the following categories: Time and Money, Measurement, Geometry, Data Analysis, Operations With Whole Numbers, Rational Numbers, and General Terms. We calculated the number of total terms per program, the percentage of term overlap across programs, and the total number of terms per category.

Appendix B

Categorization of Vocabulary: Grade 5

The tables that follow detail the appearance of math terms by grade level across specific skills/strands, in the mathematics materials discussed in this crosswalk. *Connecting Math Concepts* and *Math Expression* are abbreviated as *CMC* and *ME*, respectively. The number of terms in each program are aggregated at the bottom of each skill/strand table.

Data Analysis		
Term	**CMC**	**ME**
Diagram	✓	
Frequency table		✓
Graph	✓	
Line plot	✓	✓
Probability	✓	
Number of Terms = 5		
Total CMC	*Total ME*	*Total Overlapping*
4	*2*	*1*

Fractions, Decimals, & Percents		
Term	**CMC**	**ME**
Bottom number (denominator)	✓	
Common denominator		✓
Decimal	✓	✓
Decimal fraction		✓
Denominator	✓	✓
Equal parts	✓	
Equivalent decimal		✓
Fraction	✓	✓
Hundredth	✓	✓
Mixed number	✓	✓
Numerator	✓	✓
Part	✓	

Fractions, Decimals, & Percents		
Term	**CMC**	**ME**
Percent	✓	
Ratio	✓	
Reciprocal	✓	
Simplify	✓	✓
Simplify and multiply method		✓
Tenth	✓	✓
Thousandth	✓	✓
Top number (numerator)	✓	
Unit fraction		✓
Unit fraction method		✓
Units	✓	
Whole	✓	
Number of Terms = 24		
Total CMC	*Total ME*	*Total Overlapping*
18	*15*	*9*

Measurement & Geometry		
Term	**CMC**	**ME**
Acute angle		✓
Acute triangle		✓
Adjacent angles		✓
Adjacent sides		✓
Angle	✓	

Measurement & Geometry		
Term	**CMC**	**ME**
Area	✓	✓
Centi (gram, liter, meter)	✓	✓
Change (as a conversion of units)	✓	
Closed		✓
Concave		✓
Congruent		✓
Congruent sides		✓
Congruent angles		✓
Convex		✓
Coordinate plane		✓
Coordinate system	✓	
Coordinates	✓	
Cube		✓
Cubic unit	✓	✓
Cylinder	✓	
Deci (gram, liter, meter)		✓
Degree	✓	
Deka (gram, liter, meter)		✓
Distance	✓	
Edge		✓
Equilateral triangle		✓
Face		✓
Feet	✓	
Gram	✓	✓
Hecto (gram, liter, meter)		✓
Height	✓	
Inches	✓	
Isosceles triangle		✓

Measurement & Geometry		
Term	**CMC**	**ME**
Kilo (gram, liter, meter)	✓	✓
Line	✓	
Line of symmetry		✓
Liter	✓	✓
Mass		✓
Meter	✓	✓
Mile		✓
Milli (gram, liter, meter)	✓	✓
Obtuse angle		✓
Obtuse triangle		✓
One-dimensional		✓
Open		✓
Opposite angles		✓
Opposite sides		✓
Ordered pair		✓
Origin		✓
Parallel	✓	✓
Parallelogram	✓	✓
Perimeter	✓	✓
Perpendicular		✓
Perpendicular sides		✓
Pi	✓	
Point	✓	
Polygon		✓
Prism		✓
Quadrilateral	✓	✓
Radius	✓	
Rectangle		✓
Rectangular		✓

Note. Vocabulary terms were categorized based on their most common usage in math. Terms may be used in domains other than the ways in which they are categorized in this document.

CMC – Connecting Math Concepts

ME – Math Expression

Measurement & Geometry		
Term	**CMC**	**ME**
Rectangular prism	✓	✓
Reflex angle		✓
Regular polygon		✓
Rhombus		✓
Right angle		✓
Right triangle		✓
Scalene triangle		✓
Scaling		✓
Square	✓	✓
Square unit		✓
Surface area	✓	
Three-dimensional		✓
Ton		✓
Trapezoid		✓
Two-dimensional		✓
Volume	✓	✓
Weigh	✓	
X direction	✓	
X value	✓	
X-axis		✓
X-coordinate		✓
Y direction	✓	
Y value	✓	
Y-axis		✓
Y-coordinate		✓
Total Number of Terms = 87		
Total CMC	*Total ME*	*Total Overlapping*
35	*67*	*15*

Operations & Algebraic Thinking		
Term	**CMC**	**ME**
Add	✓	
Add on		✓
Additive		✓
Area model for multiplication		✓
Associative property		✓
Base	✓	✓
Base number	✓	
Big number	✓	
Break apart drawing		✓
Common factor	✓	✓
Commutative property		✓
Comparison		✓
Comparison bars		✓
Comparison problem	✓	
Digit-by-digit method		✓
Distributive property		✓
Dividend		✓
Division fact	✓	
Division problem	✓	
Divisor	✓	✓
Equation	✓	✓
Exponent	✓	✓
Exponential form		✓
Expression		✓
Fact	✓	
Factor	✓	✓
Fraction-bar model for multiplication		✓
Minus	✓	

Note. Vocabulary terms were categorized based on their most common usage in math. Terms may be used in domains other than the ways in which they are categorized in this document.

CMC – Connecting Math Concepts

ME – Math Expression

Operations & Algebraic Thinking		
Term	**CMC**	**ME**
Multiples	✓	
Multiplication problem	✓	
Multiplicative		✓
Multiplicative comparison		✓
Multiply	✓	
Multiply and simplify method		✓
New groups below		✓
Notation		✓
Number families	✓	
Order of operations		✓
Parentheses	✓	✓
Partial products		✓
Place value addition method	✓	
Place value rows		✓
Place value sections		✓
Place value sections method		✓
Power of ten		✓
Product		✓
Quantity	✓	
Quotient		✓
Rectangle model		✓
Regroup		✓
Remainder	✓	✓
Repeated multiplication	✓	
Round	✓	✓
Row	✓	
Situation equation		✓

Operations & Algebraic Thinking		
Term	**CMC**	**ME**
Small number	✓	
Solution equation		✓
Start-end problems	✓	
Times	✓	
Total	✓	
Underestimate		✓
Ungroup		✓
Word form		✓
Total Number of Terms = 63		
Total CMC	*Total ME*	*Total Overlapping*
29	*43*	*9*

Place Value		
Term	**CMC**	**ME**
Column	✓	
Comma	✓	
Digit	✓	
Expanded form		✓
Expanded notation		✓
Expanded notation method		✓
Grouping		✓
Standard form		✓
Thousands numbers	✓	
Total Number of Terms = 9		
Total CMC	*Total ME*	*Total Overlapping*
4	*5*	*0*

Note. Vocabulary terms were categorized based on their most common usage in math. Terms may be used in domains other than the ways in which they are categorized in this document.

CMC – Connecting Math Concepts

ME – Math Expression

Cross-Domain Terms		
Term	**CMC**	**ME**
Average	✓	
Benchmark		✓
Between	✓	
Composite		✓
Counterexample		✓
Equal	✓	
Estimate	✓	✓
Evaluate		✓
Even		✓
Greater than >	✓	✓
Larger	✓	
Leading language		✓
Less than <	✓	✓
Misleading language		✓
Number line	✓	
Numerical pattern		✓
Odd		✓
Overestimate		✓
Prime number	✓	
Sign	✓	
Smaller	✓	
Term		✓
Variable		✓
Total Number of Terms = 24		
Total CMC	*Total ME*	*Total Overlapping*
11	*15*	*3*

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