DISTRICT OF COLUMBIA
PUBLIC SCHOOLS

Cover Page for 2nd Grade Math Scope and Sequence

The purpose of this document is to clarify the intentions of this Scope and Sequence (SAS) and to provide a window into the thinking behind the choices made. If you have further questions, concerns, and/or ideas, please reach out to Camsie McAdams, Director of STEM. We are excited to make our math work exemplary throughout the district!

PLEASE NOTE THAT STANDARDS APPEARING IN BOLD IN THE SAS DOCUMENTS ARE CONSIDERED MAJOR FOCUS STANDARDS (guidance from PARCC).

1. **What is our main focus in each unit?**

Unit 1.1 – Categorizing: using data to learn about each other, to establish a context for discussing numbers, and to build student's language for a math-rich environment

Unit 1.2 – How Long: measurement and comparing lengths of objects; unit lengths; number lines

Unit 2.1 – Putting It Together and Taking It Apart: sums and differences; number lines; computation strategies

Unit 3.1 – Money and Value: patterns in counting; money; time

Unit 3.2 – Shape Sharing: shape attributes; shape fractions; arrays; odd and even

Unit 4.1 – Position and Value: base-ten number system; comparing numbers; mental computation

Unit 5.1 – Strategic Re-teaching and Review: based on student data, prepare students for the DC CAS

Unit 6.1 – Bridge: place value understanding for addition and subtraction; arithmetic patterns

2. **Why are we starting with data when place value and computation are so critical at this grade level?**

The goal is to develop students' language when they are describing the world around them. Place value and computation (as we have traditionally taught it) are abstract representations and will come later in the year. At the onset, we want our students getting a broader sense of how to make sense of their world – through sorting, describing, and comparing objects and quantities. Using data generated by the class and community is a natural way to provide this context.

3. **Why are time and money being taught together in unit 3.1?**

These are both supporting standards for this grade level and therefore do not receive as much emphasis as the major cluster standards. Additionally, we want to teach both money and time through the lens of skip counting. Telling time to 5 minute intervals is similar to counting nickels, for example.

4. **What am I supposed to teach and do in unit 5.1?**

Unit 5 is meant to be a 10-day focused reviewing and re-teaching opportunity to help students feel prepared for success on the DC CAS. Use the data you have gathered about your students' understanding (journals, anecdotal records, PIA data, in-class quizzes, etc.) to strategically plan ways to address your students' needs. Incorporating

whole group re-teaching as well as small-group and individualized instruction should comprise your instructional plan during this window.

5. **What am I supposed to teach and do in unit 6.1?**

The sixth instructional window is meant to be a bridge from one grade level to the next. We have selected some of the priority standards from this grade and linked them to similar standards in the upcoming one so that we are preparing our students for their next steps. Additionally, this is the time to really ensure all students have mastered the fluency standards and the major foci for this grade level.

6. **How can I incorporate the routine/fluency standards since they happen throughout the year?**

Adding and subtracting numbers within 20, using mental computation, and fluently computing within 100 are skills you can incorporate in daily morning meetings or morning/math messages. For example, when taking attendance, count and compare how many people are here versus how many are not; or how many boys and how many girls are in the class. Children will also develop this fluency through repeated exposure, practice, and discussion. Using two tens frames and two-sided counters, for example, are a great way to incorporate this skill in a fun practice.

7. **How can I incorporate the Standards for Mathematical Practice and why are only 2-3 underlined in each Instructional Unit?**

While the Standards for Mathematical Practice are not necessarily content-specific, we felt that some were better aligned to each unit. These standards should drive your pedagogical work every day. They are "habits of mind" that permeate the way we think and act on a daily basis. We recommend naming these with your students (although putting them in kid-friendly language may help at this age), so that the standards become part of your classroom's norms.

8. **What role does assessment play in my math instruction?**

Formative (on-going) assessments are an important part of instruction at every grade level. We strongly encourage you to take anecdotal notes on what your students are doing, saying, figuring out, and moving towards on a daily basis (at least for a few students per day). Building this type of work into your practice as a routine will make it seem less daunting and will also provide you with valuable information to inform your instruction – whether it be for your class, for a small group, or for individual students.

9. **What does it really mean to have "real world applications"? Can I just use word problems in my instruction?**

This is an interesting question! We encourage you to have conversations with colleagues about "school math" versus "real world" applications. Are we writing word problems for word problems' sake or are we really asking students to apply concepts at a deeper level? For example, giving students the problem, "Jake had 4 candy bars and gave 3 away. How many does he have now?" is more of a "school math" problem. We may not need to figure this out in our "real life". However, if we are comparing shapes, we may authentically ask, "How many more sides does a square have than a triangle?"

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SY 2012-2013 Grade 2 CCSSM Math Scope and Sequence

First Instructional Window	Instructional Units	Common Core State Standards for Mathematical Content For each instructional window, instruction should focus on these standards as they will be assessed on the interim assessment. Order of standards is intentional.
August 27 – October 11 Paced Interim Assessment: October 10th, 11th Instructional Days: 32 (including testing)	**1.1 Categorizing** Approximate number of instructional days: 10 days	**2. MD.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. **2. NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons**. (*Note: Introduction of this standard takes place in this unit, but may be limited to two two-digit numbers as it aligns to the graphic data.)*
	1.2 How Long! Approximate number of instructional days: 20 days	**2. MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.** **2. MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.** **2. MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.** **2. MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.** **2. MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. **2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.** **2. MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, (e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem).**
		Routine/Fluency Standards: **2. OA.2 Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.**

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		Standards for Mathematical Practice: *Note: These standards should drive your pedagogical practice every day. The underlined standards are critical ones for this unit.* 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 mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning**.**

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Second Instructional Window	Instructional Units	Common Core State Standards for Mathematical Content For each instructional window, instruction should focus on these standards as they will be assessed on the interim assessment. Order of standards is intentional.
October 12 – December 5 Paced Interim Assessment: December 4th, 5th Instructional Days: 34 (including testing)	**2.1 Place and Value** Approximate number of instructional days: 32 days	**2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; (e.g., 706 equals 7 hundreds, 0 tens, and 6 ones). Understand the following as special cases.** **a. 100 can be thought of as a bundle of ten tens—called a "hundred."** **b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).** **2. NBT.8 Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.** **2. NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.** **2. NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.**

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Third Instructional Window	Instructional Units	Common Core State Standards for Mathematical Content For each instructional window, instruction should focus on these standards as they will be assessed on the interim assessment. Order of standards is intentional.
December 6 – February 6 Paced Interim Assessment: February 5th, 6th Instructional Days: 33 (including testing)	**3.1 Money and Value** Approximate number of instructional days: 11 days (before winter break)	**2. MD.8** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using dollar or cent symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?* **2. NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.** **2. MD.7** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

	3.2 Shape Sharing Approximate number of instructional days: 20 days (after winter break)	**2. G.1** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons and cubes. **2.G.3** Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of,* etc. and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. **2.G.2** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.** **2. OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, (e.g. by pairing objects or counting them by 2s), write an equation to express an even number as a sum of two equal addends.** **Routine/Fluency Standards:** **2.OA.2 Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.**

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		Standards for Mathematical Practice: *Note: These standards should drive your pedagogical practice every day. The underlined standards are critical ones for this unit.* 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 mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning**.**

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Fourth Instructional Window	Instructional Units	Common Core State Standards for Mathematical Content For each instructional window, instruction should focus on these standards as they will be assessed on the interim assessment. Order of standards is intentional.
February 7 – March 29 Paced Interim Assessment: March 27th, 28th Instructional Days: 34 (including testing)	**4.1 Putting It Together and Taking It Apart** Approximate number of instructional days: 32	**2.NBT.7 Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.** **2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.** **2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.** **2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).**
		Routine/Fluency Standards: **2. NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.**
		Standards for Mathematical Practice: *Note: These standards should drive your pedagogical practice every day. The underlined standards are critical ones for this unit.* 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 mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.

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Fifth Instructional Window	Instructional Units	Common Core State Standards for Mathematical Content For each instructional window, instruction should focus on these standards as they will be assessed on the interim assessment. Order of standards is intentional.
April 8 to May 3 **DC CAS April 22-May 2** Instructional Days: 18	**5.1 Strategic Re-teaching and Review**	Identified standards based on PIA data and other sources.

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Sixth Instructional Window	Instructional Units	Common Core State Standards for Mathematical Content For each instructional window, instruction should focus on these standards as they will be assessed on the interim assessment. Order of standards is intentional.
May 6 to June 20 Paced Interim Assessment: June 5th, 6th Instructional Days: 32	**6.1 Major Focus Standards and Bridge to 3rd Grade** 30 days	**2. NBT.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. **2.NBT.7** Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. **2. NBT.8** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. **3. OA.9** Identify arithmetic patterns (including patterns in the addition table *or multiplication table)*, and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.* **3. NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
		Routine/Fluency Standards: **2. NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.**
		Standards for Mathematical Practice: *Note: These standards should drive your pedagogical practice every day. The underlined standards are critical ones for this unit.* 1. <u>Make sense of problems and persevere in solving them.</u> 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. <u>Look for and make use of structure.</u> 8. <u>Look for and express regularity in repeated reasoning.</u>

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