Introduction

Prior to Grade 2, students have an understanding of Counting and Cardinality, which includes knowing number names and the count sequence, counting to tell the number of objects and comparing numbers; an understanding of Number and Operations in Base Ten, which includes working with numbers to gain a foundation for place value and using that understanding and properties of operations to add and subtract; an understanding of Operations and Algebraic Thinking, which includes understanding addition as putting together or adding to, and understanding subtraction as taking apart or taking from, representing and solving problems involving addition and subtraction, understanding and applying properties of operations and the relationship between addition and subtraction, add and subtract within 20, and working with addition and subtraction equations; an understanding of Measurement and Data, which includes describing and comparing measurable attributes and classifying objects and counting the number of objects in each category, measuring lengths indirectly and iterating length units, telling and writing time, and representing and interpreting data; and finally, an understanding of Geometry, which includes identifying and describing shapes and analyzing, comparing, creating, and composing shapes, and reasoning with shapes and their attributes.

Critical Areas of Instruction for Second Grade

Critical Area 1: Extending understanding of base-ten notation Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, and ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).
Critical Area 2: Building Fluency with Addition and Subtraction Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.
Critical Area 3: Using standard units of measure. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.
Critical Area 4: Describing and analyzing shapes. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three- dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Please reference the California Mathematics Framework for elaboration on the standards, critical areas, major and supporting clusters, and instructional practices.

Connecting Standards for Mathematical Practice and Content

The Standards for Mathematical Practice apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. The standards for Mathematical Practice (MP) represent a picture of what it looks like for students to ***do*** mathematics, and to the extent possible, content instruction should include attention to appropriate practice standards. There are ample opportunities for students to engage in each practice in Second Grade; the table below offers some general examples of each practice in Grade 2.

Standards for Mathematical Practice	**Example:**
MP1. *Make sense of problems and persevere in solving them.*	In second grade, students realize that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. They may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, "Does this make sense?" They make conjectures about the solution and plan out a problem-solving approach. An example of this might be giving a student an equation and having him/her write a story to match.
MP2. *Reason abstractly and quantitatively.*	Younger students recognize that a number represents a specific quantity. They connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities. Second graders begin to know and use different properties of operations and relate addition and subtraction to length. In second grade, students represent situations by decontextualizing tasks to numbers and symbols. For example, in the task, "There are 25 children in the cafeteria, and they are joined by 17 more children. How many students are in the cafeteria?" Students translate the situation into an equation, such as: 25 + 17 = ___ and then solve the problem. Students also contextualize situations during the problem solving process. For example, while solving the task above, students might refer to the context of the task to determine that they need to subtract 19 if 19 children leave.
MP3. *Construct viable arguments and critique the reasoning of others.*	Second graders may construct arguments using concrete referents, such as objects, pictures, drawings, and actions. They practice their mathematical communication skills as they participate in mathematical discussions involving questions like, "How did you get that?", "Explain your thinking," and "Why is that true?" They not only explain their thinking, but listen to others' explanations. They decide if the explanations make sense and ask appropriate questions. Students critique the strategies and reasoning of their classmates. For example, to solve 74 – 18, students may use a variety of strategies, and after working on the task, they might discuss and critique each other's reasoning and strategies, citing similarities and differences between various problem-solving approaches.
MP4. *Model with mathematics*	In early grades, students experiment with representing problem situations in multiple ways including numbers, using words, (mathematical language), drawing pictures, using objects, acting out, making a chart or list, and creating equations. Students need opportunities to connect the different representations and explain the connections. They should be able to use any of these representations as needed. In grade two, students model real-life mathematical situations with a number sentence or an equation and check to make sure equations accurately match the problem context. They use concrete manipulatives and pictorial representations to explain the equation. They create an appropriate problem situation from an equation. They create while solving tasks and also write equations to model problem situations. For example, students create a story problem for the equation 43 + 17 = ____ such as "There are 43 gumballs in the machine. Tom poured in 17 more gumballs. How many gumballs are now in the machine?"

Standards for Mathematical Practice	Example:
MP5. *Use appropriate tools strategically*	In second grade, students consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be better suited than others. For instance, second graders may decide to solve a problem by drawing a picture rather than writing an equation. Students may use tools such as snap cubes, place value (base ten) blocks, hundreds number boards, number lines, rulers, virtual manipulatives, and concrete geometric shapes (e.g., pattern blocks, 3-dimensional solids). Students understand which tools are the most appropriate to use. For example, while measuring the length of the hallway, students can explain why a yardstick is more appropriate to use than a ruler.
MP6. *Attend to precision.*	As children begin to develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and when they explain own reasoning. Second grade students communicate clearly, using grade-level appropriate vocabulary accurately and precise explanations, using reasoning to explain their process and solutions. For example, while measuring an object, students carefully line up the tool correctly to get an accurate measurement. During tasks involving number sense, students consider if their answer is reasonable and check their work to ensure the accuracy of solutions.
MP7. *Look for and make use of structure*	Second graders look for patterns. For instance, they adopt mental math strategies based on patterns (making ten, fact families, doubles). Second grade students look for patterns and structures in the number system. For example, students notice number patterns within the tens place as they connect skip counting by 10's to corresponding numbers on a 100's chart. Students see structure in the base-ten number system as they understand that 10 ones equals a ten, and 10 tens equal a hundred. Students adopt mental math strategies based on patterns (making ten, fact families, doubles). They use structure to understand subtraction as a missing addend problem (e.g., 50 – 33 = ___ can be written as 33 + ___ = 50 and can be thought of as "How much more do I need to add to 33 to get to 50?"
MP8. *Look for and express regularity in repeating reasoning.*	Second grade students notice repetitive actions in counting and computation (e.g., number patterns to skip count). When children have multiple opportunities to add and subtract, they look for shortcuts, such as using estimation strategies, and then adjust the answer to compensate. Students continually check for the reasonableness of their solutions during and after completing a task by asking themselves, "Does this make sense?"

Adapted from CA Mathematics Framework 2015.

Second Grade Content Emphasis by Cluster (PARCC/SBAC)

Not all of the content in a given grade is emphasized equally in the standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time they take to master, and/or their importance to future mathematics or the demands of college and career readiness. In addition, an intense focus on the most critical material at each grade allows depth in learning, which is carried out through the Standards for Mathematical Practice. To say that some things have greater emphasis is not to say that anything in the standards can safely be neglected in instruction. Neglecting materials will leave gaps in student skill and understandings and may leave students unprepared for the challenges of a later grade. The following table identifies the Major Clusters, Additional Clusters, and Supporting Clusters for this grade. Also, Achieve the Core's Coherence Map supports within and across grade level coherence.

Major Clusters (70%) Area of intensive focus where students need fluent understanding and application of the core.	**Supporting Clusters (20%)** Rethinking and linking areas where some material is being covered, but in a way that applies core understanding.	**Additional Clusters (10%)** Expose students to other subjects, though at a distinct level of depth and intensity.
Operations and Algebraic Thinking • Represent and solve problems involving addition and subtraction. • Add and subtract within 20. **Number and Operations in Base Ten** • Understand place value. • Use place value understanding and properties of operations to add and subtract. **Measurement and Data** • Measure and estimate lengths in standard units. • Relate addition and subtraction to length.	**Operations and Algebraic Thinking** • Work with equal groups of objects to gain foundations for multiplication. **Measurement and Data** • Work with time and money. • Represent and interpret data.	**Geometry** • Reason with shapes and attributes.

Depth Opportunities: 2.OA.1, 2.OA.2; 2.NBT.1, 2.NBT.7; 2.MD.5

2nd Grade Required Fluency -

- 2.OA.2 Fluently add and subtract within 20 using mental math strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.
- 2.NBT.5 Add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2017-2018

Mathematics: Grade 2

SECOND GRADE SCOPE & SEQUENCE ~ YEAR AT A GLANCE				
Quarter	**Q1**	**Q2**	**Q3**	**Q4**
Big Ideas	**Place Value, Addition and Subtraction**	**Addition & Subtraction with Bigger Numbers**	**Working with Time, Money & Measuring Length**	**Data & Geometry**
Domains	• Numbers & Operations in Base Ten • Operations & Algebraic Thinking	• Number & Operations in Base Ten • Operations & Algebraic Thinking	• Number and Operations in Base Ten • Measurement & Data	• Measurement & Data • Geometry
Concepts Focus Standards	Number Concepts (Ch. 1) 2.OA.3, 2.NBT.2, 2.NBT.3 Numbers to 1,000 (Ch. 2) 2.NBT.1*, 2.NBT.1a*, 2.NBT.1b*, 2.NBT.3, 2.NBT.4*, 2.NBT.8 Basic Facts and Relationships (Ch. 3) 2.OA.1*, 2.OA.2, 2.OA.4, 2.NBT.2 AC Choice Option: Teach chapters in the following order: 3, 1, 2. Ch. 3 builds on the strategies focused on in 1st grade (1.OA.6) and fluency standard 2.OA.2. Embed these basic strategies throughout the year and with larger numbers.	2-Digit Addition and Subtraction (Ch. 4 & 5) 2.OA.1*, 2.NBT.5*, 2.NBT.6, 2.NBT.9 **Can Embed:** 2.MD.8 2.MD.10	3-Digit Addition and Subtraction (Ch. 6) 2.NBT.7*, 2.NBT.7.1, 2.NBT.9 **Can Embed:** 2.MD.10 Money and Time (Ch. 7) 2.MD.7, 2.MD.8 **This Supports:** 2.NBT.5* 2.NBT.6, 2.NBT.2 Measuring Length (Ch. 8) 2.MD.1, 2.MD.2, 2.MD.3, 2.MD.5, 2.MD.6, 2.MD.9	Measuring Length (Ch.9) 2.MD.1, 2.MD.2, 2.MD.3, 2.MD.4, 2.MD.5, 2.MD.6, 2.MD.9 Data (Ch. 10) 2.MD.10 **This Supports:** 2.OA.1* 2.OA.2 2.NBT.5* 2.NBT.6, Geometry (Ch. 11) 2.G.1, 2.G.2, 2.G.3 Getting Ready for 3rd Grade
Standards Assessed on Interim	**All Q1 Standards Listed Above Are Assessed On Interim 1**	**All Q2 Standards Listed Above Are Assessed On Interim 2** **Along with Recursive Standards:** 2.NBT.1*, 2.NBT.1a*, 2.NBT.1b*,2.NBT.4*		
Additional HMH Tools & Resources	Found in Quarter 1 Planner	Found in Quarter 2 Planner	Found in Quarter 3 Planner	Found in Quarter 4 Planner
Common Assignment – HMH Performance Task	HMH Performance Task **Two Schools** Critical Area – Number Sense and Place Value (2.NBT.1, 2.NBT.2, 2.NBT.4, 2.NBT.3, 2.NBT.8)	HMH Performance Task **Farmer's Market** Ch. 5-2-Digit Addition/Subtraction (2.OA.1, 2.NBT.5, 2.NBT.9) (Use of bar diagram and focus on relationship of addition and subtraction)	HMH Performance Task **The Reading Challenge** Critical Area – Addition and Subtraction (2.OA.1,2.NBT.5, 2.NBT.6, 2.NBT.7, 2.NBT.9)	HMH Performance Task **The Museum Store** Critical Area – Measurement and Data (2.MD.1, 2.MD.5, 2.MD.7, 2.MD.8, 2.MD.10)

Key: Standards in Major Clusters | Standards in Supporting Clusters | Standards in Additional Clusters

*** Denotes a recursive standard**

Text Boxes provide suggestions for connections to build coherence across standards and further support the major clusters.