Grade 2

Mathematics - Grade 2: Critical Areas

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

1. 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, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones). **(NBT.1, NBT.2, NBT.3, NBT.4, NBT.5, NBT.6, NBT.7, NBT.8, NBT.9)**

2. 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. **(OA.1, OA.2, OA.3, OA.4)**

3. Students recognize the need for standard units of measure (ie: 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. **(MD.1, MD.2, MD.3, MD.4, MD.5, MD.6)**

4. 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. **(G.1; G.2; G.3)**

● Major Clusters | ● Supporting |

● Additional Clusters | * Benchmarked Standard

<u>Vocabulary:</u> Building the Language of Mathematics for Students

Second Grade

Operations and Algebraic Thinking	Number and Operations in Base Ten	Measurement and Data	Geometry
Represent and solve problems involving addition and subtraction. add, subtract, more, less, equal, equation, putting together, taking from, taking apart,addend, comparing, unknown **Add and subtract within 20.** add, subtract, sum, more, less, equal, equation, putting together, taking from, taking apart, addend **Work with equal groups of objects to gain foundations for multiplication.** odd, even, row, column, rectangular array, equal,addend, equation, sum	**Understand place value.** hundreds, tens, ones, skip count, base-ten, *number names to 1,000* (e.g., one, two, thirty, etc.), expanded form, greater than (>), less than (<), equal to (=), digit, compare **Use place value understanding and properties of operations to add and subtract.** fluent, compose, decompose, place value, digit, ten more, ten less, one hundred more, one hundred less, add, subtract, sum, equal, addition, subtraction	**Measure and estimate lengths in standard units.** about, a little less than, a little more than, longer, shorter, measure, standards units, units, customary, metric, inch, foot, centimeter, tools, ruler, meter, centimeter, ruler, yardstick, meter stick, measuring tape, estimate, sums, differences **Relate addition and subtraction to length.** inch, foot, yard, centimeter, meter, ruler, yardstick, meter stick, measuring tape, estimate, length, equation, number line, equally spaced, point, addition, subtraction, unknown, sums, differences, measure, standard units, customary, metric, units, sums, differences **Work with time and money.** time, hour hand, minute hand, hour, minute, a.m., p.m., o'clock, *multiples of 5* (e.g., five, ten, fifteen, etc.), analog clock, digital clock, quarter 'til, quarter after, half past, quarter hour, half hour, thirty minutes before, 30 minutes after, 30 minutes until, 30 minutes past, quarter, dime, nickel, dollar, cent(s), \$, ¢, heads, tails **Represent and interpret data.** collect, organize, display, show, data, attribute, sort, line plot, picture graph, bar graph, question, category, chart, table, most, least, more than, less than, about, same, different, measure, inch, foot, yard, centimeter, meter, length	**Reason with shapes and their attributes.** attribute, feature,angle, side, triangle, quadrilateral, square, rectangle, trapezoid, pentagon, hexagon, cube, face, edge, vertex, surface, figure, shape, closed, open, partition, equal size, equal shares, half, halves, thirds, half of, a third of, whole, two halves, three thirds, four fourths, rows, columns From previous grades: circle, square, sphere, half-circle, quarter-circle, cone, prism, cylinder, trapezoid

The Common Core State Standards for Mathematical Practice are practices expected to be integrated into every mathematics lesson for all students Grades K-12. Below are a few examples of how these Practices may be integrated into tasks that Grade 2 students complete.

Practice Explanation and Example

MP1) Make Sense and Persevere in Solving Problems. Mathematically proficient students in Grade 2 examine problems, can make sense of the meaning of the task, and find an entry point or a way to start the task. Grade 2 students also develop a foundation for problem solving strategies and become independently proficient on using those strategies to solve new tasks. In Grade 2, students' work still relies on concrete manipulatives and pictorial representations as students solve tasks unless the CCSS refers to the word fluently, which denotes mental mathematics. Grade 2 students also are expected to persevere while solving tasks; that is, if students reach a point in which they are stuck, they can reexamine the task in a different way and continue to solve the task. Lastly, mathematically proficient students complete a task by asking themselves the question, "Does my answer make sense?"

MP2) Reason abstractly and quantitatively. Mathematically proficient students in Grade 2 make sense of quantities and the relationships while solving tasks. This involves two processes— decontextualizing and contextualizing. In Grade 2, students represent situations by decontextualizing tasks into numbers and symbols. For example, in the task, "There are 25 children in the cafeteria and they are joined by 17 more children. Then, if 19 of those children then leave, how many are still there?" Grade 2 students are expected to translate that situation into the equation: $25 + 17 - 19 = ?$ and then solve the task. Students also contextualize situations during the problem-solving process. For example, while solving the task above, students can refer to the context of the task to determine that they need to subtract 19 since 19 children leave. The processes of reasoning also apply to Grade 2 as students begin to measure with standard measurement units by determining the length of quantities based on particular units of measure.

MP3) Construct viable arguments and critique the reasoning of others. Mathematically proficient students in Grade 2 accurately use definitions and previously established solutions to construct viable arguments about mathematics. In Grade 2 during discussions about problem solving strategies, students constructively critique the strategies and reasoning of their classmates. For example, while solving $74 + 18 - 37$, students may use a variety of strategies, and after working on the task, can discuss and critique each other's reasoning and strategies, citing similarities and differences between strategies.

MP4) Model with mathematics. Mathematically proficient students in Grade 2 model real-life mathematical situations with a number sentence or an equation, and check to make sure that their equation accurately matches the problem context. Grade 2 students still will rely on concrete manipulatives and pictorial representations while solving problems, but

the expectation is that they will also write an equation to model problem situations. Likewise, Grade 2 students are expected to create an appropriate problem situation from an equation. For example, students are expected to create a story problem for the equation $24 + 17 - 13 = ?$

MP5) Use appropriate tools strategically. Mathematically proficient students in Grade 2 have access to and use tools appropriately. These tools may include place value (base ten) blocks, hundreds number boards, number lines, and concrete geometric shapes (e.g., pattern blocks, 3-d solids). Students should also have experiences with educational technologies, such as calculators and virtual manipulatives that support conceptual understanding and higher-order thinking skills. During classroom instruction, students should have access to various mathematical tools as well as paper, and determine which tools are the most appropriate to use. For example, while solving $28 + 17$, students can explain why place value blocks are more appropriate than counters.

6MP) Attend to precision. Mathematically proficient students in Grade 2 are precise in their communication, calculations, and measurements. In all mathematical tasks, students in Grade 2 communicate clearly, using grade-level appropriate vocabulary accurately as well as giving precise explanations and reasoning regarding their process of finding solutions. For example, while measuring objects iteratively (repetitively), students check to make sure that there are no gaps or overlaps. During tasks involving number sense, students check their work to ensure the accuracy and reasonableness of solutions.

MP7) Look for and make use of structure. Mathematically proficient students in Grade 2 carefully look for patterns and structures in the number system and other areas of mathematics. While solving addition and subtraction problems students can apply the patterns of the number system to skip count by 10s off the decade. For example, Grade 2 students are expected to mentally reason that $33 + 21$ is 33 plus 2 tens, which equals 53 and then an addition one which equals 54. While working in the Numbers in Base Ten domain, students work with the idea that 10 ones equal a ten, and 10 tens equals 1 hundred. Further, Grade 2 students also make use of structure when they work with subtraction as missing addend problems, such as $50 - 33 = ?$ 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 repeated reasoning. Mathematically proficient students in Grade 2 begin to look for regularity in problem structures when solving

mathematical tasks. For example, after solving two-digit addition problems by decomposing numbers by place ($33 + 25 = 30 + 20 + 3 + 5$), students may begin to generalize and frequently apply that strategy independently on future tasks. Further, students begin to look for strategies to be more efficient in computations, including doubles strategies and making a ten. Lastly, while solving all tasks, Grade 2 students accurately check for the reasonableness of their solutions during, and after completing the task.

- Major Clusters | - Supporting |
- Additional Clusters | * Benchmarked Standard

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Pacing Guide - Year-at-a-Glance - Timing based upon 4 Marking Periods at 9 weeks each

Pacing Guide	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 1 - 9 weeks **Add and Subtract within 100 and Understand Place Value to 1000**	● 2.OA.A.1* ● 2.OA.B.2* ● 2.NBT.A.1 ● 2.NBT.A.2* ● 2.NBT.A.3 ● 2.NBT.A.4 ● 2.NBT.B.8	● Represent and solve problems involving addition and subtraction ● Add and subtract within 20 ● Understand place value ● Use place value understanding and properties of operations to add and subtract	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics.
Unit 1: Suggested Open Educational Resources	2.OA.A.1 Pencil and a Sticker 2.OA.B.2 Building toward fluency 2.NBT.A.1 Making 124 2.NBT.A.1 Largest Number Game 2.NBT.A.3 Looking at Numbers Every Which Way 2.NBT.A.4 Ordering 3-digit numbers 2.NBT.B.8 Choral Counting		MP.5 Use appropriate tools strategically. MP.6 Attend to precision.

Unit 2- 9 weeks **Place Value Strategies for Addition and Subtraction**	● 2.OA.A.1* ● 2.OA.B.2* ● 2.OA.C.3 ● 2.OA.C.4 ● 2.G.A.2 ● 2.NBT.B.5* ● 2.NBT.B.6 ● 2.NBT.B.7 ● 2.NBT.B.9 ● 2.NBT.A.2*	● Represent and solve problems involving addition and subtraction ● Add and subtract within 20 ● Work with equal groups of objects to gain foundations for multiplication ● Reason with shapes and their attribute ● Use place value understanding and properties of operations to add and subtract ● Understand place value	MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.
Unit 2: Suggested Open Educational Resources	2.OA.B.2 Hitting the Target Number 2.OA.C.3 Red and Blue Tiles 2.OA.C.4 Counting Dots in Arrays 2.G.A.2 Partitioning a Rectangle into Unit Squares 2.NBT.B.6 Toll Bridge Puzzle 2.NBT.B.7 How Many Days Until Summer Vacation? 2.NBT.B.9 Peyton and Presley Discuss Addition		

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● Additional Clusters | * Benchmarked Standard

● Major Clusters | ● Supporting |

Unit 3- 9 weeks **Measurement**	● 2.MD.A.1 ● 2.MD.A.3 ● 2.MD.A.2 ● 2.MD.A.4 ● 2.MD.B.5 ● 2.MD.B.6 ● 2.MD.C.7 ● 2.NBT.A.2* ● 2.NBT.B.5*	● Measure and estimate lengths in standard units ● Relate addition and subtraction to length ● Work with time ● Understand place value ● Use place value understanding and properties of operations to add and subtract	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others.

Unit 3: Suggested Open Educational Resources	[2.MD.A.1,3,4 Determining Length](#) [2.MD.B.5 High Jump Competition](#) [2.MD.B.6 Frog and Toad on the Number Line](#) [2.MD.C.7 Ordering Time](#)		MP.4 Model with mathematics.
[Unit 4](#)- 9 weeks **Reason with Shapes and Represent Data**	● 2.G.A.1 ● 2.G.A.3 ● 2.MD.C.8 ● 2.MD.D.9 ● 2.MD.D.10 ● 2.OA.B.2* ● 2.NBT.B.5*	● Reason with shapes and their attributes ● Work with money ● Represent and interpret data ● Add and subtract within 20 ● Use place value understanding and properties of operations to add and subtract	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.
Unit 4: Suggested Open Educational Resources	[2.MD.C.8 Delayed Gratification](#) [2.MD.D.9 Hand Span Measures](#) [2.MD.D.9 The Longest Walk](#) [2.MD.D.10 Favorite Ice Cream Flavor](#) [2.NBT.B.5 Saving Money 1](#) [2.NBT.B.5 Saving Money 2](#)		MP.8 Look for and express regularity in repeated reasoning.

Grade 2: Interdisciplinary Connections ____ Language Arts ____ Science ____ Social Studies ____ World Languages ____ Arts
21st Century Themes ___ Global Awareness ___ Financial, Economic, Business and Entrepreneurial Literacy ___ Civic Literacy ___ Health Literacy ___ Environmental Literacy

21st Century Life and Careers Standards

Career Ready Practices:

☒ 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g.,

1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2)

☒ 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g.,

1.3A.2CR1a)

☐ 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2)

☒ 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g.,

1.2.2.CR1b, 8.2.2.ED.3

☒ 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using

the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).

☐ 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments

☒ 9.4.2.TL.2: Create a document using a word processing application

☐ 9.4.2.TL.5: Describe the difference between real and virtual experiences

☐ 9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with

each job..

☐ 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community

☐ 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business.

Unit 1 Grade 2- Add/Subtract within 100 and Understand Place Value to 1000		
Content Standards	**Suggested Standards for Mathematical Practice and P21 Skills**	**Critical Knowledge & Skills**

● 2. OA.A.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. *(benchmarked)	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation Communication and Collaboration Information Literacy ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● Count on and put together to add to solve one- and two-step word problems. ● Take from or take apart to subtract to solve one- and two-step word problems. ● Use drawings and equations to represent the problem. Learning Goal 1: Add and subtract within 20 to solve 1- and 2-step word problems with unknowns in any position.
● 2. OA.B.2. Fluently add and subtract within 20 using mental strategies. *By end of Grade 2, know from memory all sums of two one-digit numbers.* *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● Add within 10 using mental strategies with accuracy and efficiency. ● Subtract within 10 using mental strategies with accuracy and efficiency. Learning Goal 2: Fluently add and subtract within 10 using mental strategies.
● 2.NBT. A.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:	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation	Concept(s): ● 100 can be thought of as a bundle of ten tens — called a *hundred.* ● 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*). Students are able to: ● represent 100 as a bundle of ten *tens.* ● represent the number of *hundreds*, *tens*, and *ones* in a 3-digit number.

2.NBT.A.1.a. 100 can be thought of as a bundle of ten tens — called a "hundred." 2.NBT.A.1.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).	ICT Literacy	Learning Goal 3: Represent a 3-digit number as specific amounts of *hundreds*, *tens*, and *ones*. Learning Goal 4: Identify ten *tens* as 100 and represent two hundred, three hundred, … nine hundred with 2, 3, …, 9 hundred bundles (with zero *tens* and zero *ones*).
● 2.NBT. A.2. Count within 1000; skip-count by 5s, 10s, and 100s.*(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● count by fives within 1000. ● count by tens within 1000. ● count by hundreds within 1000. Learning Goal 5: Skip count by 5s and 10s up to 100...beginning at any multiple of 5.
● 2.NBT. A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation ICT Literacy	Concept(s): ● Expanded form Students are able to: ● read numbers to 1000 written using base-ten numerals. ● read number names to 1000. ● read numbers to 1000 written in expanded form. ● write numbers to 1000 using base-ten numerals, number names, and expanded form. Learning Goal 6: Read numbers to 1000 using base-ten numerals, number names, and expanded form. Learning Goal 7: Write numbers to 1000 using base-ten numerals, number names, and expanded form.

● 2.NBT. A.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.	MP 2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): ● Place value Students are able to: ● use the number of the hundreds, tens and/or ones digits to compare two three-digit numbers. ● write the results of the comparison using >, =, or <.

	Critical Thinking and Problem Solving Creativity and Innovation Information Literacy ICT Literacy	Learning Goal 8: Use symbols >, =, < to record the results of comparing two 3-digit numbers by decomposing the number into a number (100s, 10s, and 1s).
● 2.NBT. B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation Information Literacy ICT Literacy	Concept(s): ● Place value Students are able to: ● Mentally add 10 or 100 from any given number between 100 and 900. ● Mentally subtract 10 or 100 from any given number between 100 and 900. Learning Goal 9: Mentally add or subtract 10 or 100 from any given number between 100 and 900.

Unit 1 Grade 2-Add/Subtract within 100 and Understand Place Value to 1000

District/School Formative Assessment Plan District/School Summative Assessment Plan Benchmark Assessment Alternative Assessment

District/School Formative Assessment Plan	District/School Summative Assessment Plan	Benchmark Assessment	Alternative Assessment
Released item sets https://sites.google.com/site/releaseditemsets/ formative assessment material- Engageny.org under their New York State Mathematics Curriculum Materials:	https://www.engageny.org/sites/default/files/resource/attachments/g2-m1-full-module.pdf Classwork Exit tickets	White boards Benchmarks Chapter tests/Fact Quiz Performance tasks Extended projects SGO's (BOY, EOY)	Renaissance/STAR Map Testing DRA Benchmark Tests within EnVision/GoMath/Eureka

Math	State Testing Results	Teacher Created Assessments Performance Based	Assessments Extension Projects

Key:
Individual and group work

Math journals

Peer to Peer Discussions

Mad Minutes

Quick Check/Topic Quizzes

Enrichment Tasks

Homework

Focus Mathematical Concepts- Add/Subtract within 100 and Understand Place Value to 1000

Prerequisite skills:
1.OA
1.NBT
It is expected that students will have prior knowledge/experience related to the concepts and skills identified below. It may be necessary to pre-assess in order to determine if time needs to be spent on conceptual activities that help students develop a deeper understanding of these ideas. Developing understanding of whole number relationships and place value, including grouping in tens and ones; • Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20;

Common Misconceptions:
(Information adapted from Mathematics Navigator: Misconceptions and Errors, America's Choice)
Some students may not move beyond thinking of the number 358 as 300 ones plus 50 ones plus 8 ones to the concept of 8 singles, 5 bundles of 10 singles or tens, and 3 bundles of 10 tens or hundreds. Use base-ten blocks to model the collecting of 10 ones (singles) to make a ten (a rod) or 10 tens to make a hundred (a flat). It is important that students connect a

group of 10 ones with the word ten and a group of 10 tens with the word hundred. This unitizing understanding is critical to the use of $1, $10, and $100 bills as models.

When counting tens and ones (or hundreds, tens, and ones), the student misapplies the procedure for counting on and treats tens and ones (or hundreds, tens, and ones) as separate numbers. When asked to count collections of bundled tens and ones such as 32, student counts 10, 20, 30, 1, 2, instead of 10, 20, 30, 31, 32. The student has alternative conception of multi-digit numbers and sees them as numbers independent of place value. Student reads the number 32 as "thirty-two" and can count out 32 objects to demonstrate the value of the number, but when asked to write the number in expanded form, she writes "3 + 2." Student reads the number 32 as "thirty-two" and can count out 32 objects to demonstrate the value of the number, but when asked the value of the digits in the number, she responds that the values are "3" and "2."

The student recognizes simple multi-digit numbers, such as thirty (30) or 400 (four hundred), but she does not understand that the position of a digit determines its value. Student mistakes the numeral 306 for thirty-six. Student writes 4008 when asked to record four hundred eight.

The student misapplies the rule for reading numbers from left to right. Student reads 81 as eighteen. The teen numbers often cause this difficulty.

The student orders numbers based on the value of the individual digits, instead of on the value of the digit based on its place in the number. 69 > 102, because 6 and 9 are bigger than 1 and 2.

Students might rely on a key word or phrase in a problem to suggest an operation that will lead to an incorrect solution. They might think that the word left always means that subtraction must be used to find a solution. Students need to solve problems where key words are contrary to such thinking.

Key:

Number Fluency:2. OA.B.2 By end of Grade 2, know from memory all sums of two one digit numbers. * (benchmarked) **District/School Tasks**

District/School Primary and Supplementary Resources

Released item sets
https://sites.google.com/site/releaseditemsets/

White boards

formative assessment material- Engageny.org under their New York State Mathematics Curriculum Materials:
https://www.engageny.org/sites/default/files/resource/attachments/g2-m1-full-module.pdf

Individual and group work

Math journals

Framework for 21st Century Learning

Georgia Department of Education Grade 2- Formative Assessment Unit 1
https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

http://www.p21.org/our-work/p21-framework

Classwork

NJDOE-21st Century Life and Careers

Exit tickets

http://www.state.nj.us/education/aps/cccs/career/

Arizona flip book

http://www.katm.org/flipbooks/2%20FlipBook%20Final%20CCSS%202014.pdf

North Carolina wikispaces

Teachers Pay Teachers

Engage NY (Eureka Math)

Super Teacher Worksheets

Pinterest

On My Own (Harcourt Brace) Stretch Your Thinking

Tenmarks

http://maccss.ncdpi.wikispaces.net/Elementary

Georgia Department of Education Grade 2

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

Essential Questions

Why should we understand place value?

What is the difference between place and value?

How does place value help us solve problems?

How does the value of a digit change when its position in a number changes?

What does "0" represent in a number?

How can you use and understand place value to help you add and subtract numbers?

What strategies enable us to solve problems using addition and subtraction?

Special Education Students	English Language Learners	Students at Risk for School Failure	Gifted and Talented Students	Students with 504 Plans
● Provide a checklist for long, detailed tasks ● Use concrete examples of concepts before teaching the	abstract ● Highlight important concepts to be learned in text of material ● Provide concrete examples for homework/class work	assignments ● Give additional presentations by varying the methods using repetition, simpler explanations and modeling	● Use enVision Spanish Resources ● Provide text to speech for math problems ● Use of translation dictionary or	software ● Confer frequently ● Adapt a Strategy-Adjusting strategies for ESL students: http://www.teachersfirst.com/co n

tent/esl/adaptstrat.cfm
- Familiarize student with new vocabulary before beginning lesson
- Tiered interventions following RTI framework
- RTI Intervention Bank ● NJDOE resources

- Utilize online resources such as www.tenmarks.com
- EnVision K-5 intervention supports
- Modify activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/a

ssessments
- Provide higher-order questioning and discussion opportunities
- Utilize exploratory connections to higher grade concepts
- Modify Content
- Adjust Pacing of Content ●

Small Group Enrichment ● Individual Enrichment
- Provide a checklist for long, detailed tasks
- Use concrete examples of concepts before teaching the abstract
- Highlight important concepts to be learned in text of material ● Provide

concrete examples for homework/class work assignments
- Give additional presentations by varying the methods using repetition, simpler explanations and modeling

- Givewrittendirectionsto supplementverbaldirections
- Familiarizestudentwithnew vocabularybeforebeginning lesson
- Utilizevisualaidsandgraphic organizers
- Utilizemanipulative,hands-on activities
  - Providegraphpaperfor computation
- Additionaltimetocomplete activities/assignments/projects/assessments
- Modifyorprovideanoptionfor alternative activities/assignments/projects/assessments
- SmallGroup Instruction/Intervention/Remediation
- Individual Intervention/Remediation
  - AdditionalSupportMaterials/ Onlineresources
- GuidedNotesorcopyofteacher notes
- Reviewprerequisiteskills

- AfterSchoolTutoring
- Chunk activities/assignments/projects/assessmentsintomanageable units
- Utilizevisualaidsandgraphic organizers
- Utilizemanipulative,hands-on activities

- GuidedNotesorcopyofteacher notes

- AdditionalSupportMaterials/ Onlineresources

- Review prerequisiteskills
- http://w

[ww.wida.us/standards/elp.aspx](http://www.wida.us/standards/elp.aspx)
- Higher-LevelText
  - Providewholegroup enrichmentexplorations
  - Teachcognitiveand methodologicalskills
- Usecenter,stations,orcontracts ●Organizeintegrated problem-solvingsimulations
- Proposeinterest-basedextension activities
- Createanenhancedsetof introductoryactivities(e.g. advance organizers, concept maps,conceptpuzzles
- Provideoptions,alternatives and choicestodifferentiateand broadenthecurriculum
- Proposeindependentprojects basedonindividualinterests

- AdditionalSupportMaterials / Onlineresources
  - Afterschoolclubs
  - Tieredcenters
  - Tieredassignments
- Givewrittendirectionsto supplementverbaldirections
- Familiarizestudentwithnew vocabularybeforebeginning lesson
- Utilizevisualaidsandgraphic organizers
- Utilizemanipulative,hands-on activities
  - Providegraphpaperfor computation
- Additionaltimetocomplete activities/assignments/projects/assessments
- Modifyorprovideanoptionfor alternative activities/assignments/projects/assessments
- SmallGroup Instruction/Intervention/Remediation
- Individual

Intervention/Remediation
- AdditionalSupportMaterials/ Onlineresources

- GuidedNotesorcopyofteacher notes
- Reviewprerequisiteskills
- AfterSchoolTutoring

- Chunk activities/assignments/projects/a ssessmentsintomanageable units

- Allow student to receive reading text in various forms (written, verbal, audio) r on a lower reading level
- Allow student to make test corrections or retake assessment
- Adjust Pacing of Content
- See IEPs of students for specific modifications

Vocabulary Ongoing Modifications
- Allow student to receive reading text in various forms (written, verbal, audio) r on a lower reading level
- Allow student to make test corrections or retake assessment ● Adjust Pacing of Content ● See 504 plan for specific accommodations

Extra time on task

Limited # of items

Flashcards

Manipulatives

Number lines

Anchor charts

Number charts

Building the language of mathematics

http://maccss.ncdpi.wikispaces.net/file/view/2014+Building+Vocabulary.pdf
Georgia Department of Education Grade 2 Intervention Table

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

Differentiated centers

Reteaching tasks

ELL:

http://www.wida.us/standards/elp.aspx

Instructional Best Practices and Exemplars

The understanding that 100 is equal to 10 groups of ten or 100 ones is critical to understanding base-10 place value. Using proportional models such as base-ten blocks or bundles of tens along with place-value mats helps create connections between the physical and symbolic representations of a number and its magnitude. These models can build a stronger understanding when comparing two quantities and identifying the value of each place value position. Van de Walle (p.127) notes that "the models that most clearly reflect the relationship of ones, tens, and hundreds are those for which the ten can actually be made or grouped from single pieces." Groupable base ten models can be made from beans and cups, bundled straws or craft sticks, unifix cubes, etc. If children are struggling with base ten blocks, you may consider using number cubes or inexpensive homemade manipulatives to help develop their understanding.

Model three-digit numbers using base-ten blocks in multiple ways. For example, 236 can be 236 ones, OR 23 tens and 6 ones, OR 2 hundreds, 3 tens and 6 ones, OR 20 tens and 36 ones. Use activities and games that have students match different representations of the same number.

Provide games and other situations that allow students to practice skip-counting. Students can use nickels, dimes and dollar bills to skip count by 5, 10 and 100. Pictures of the coins and bills can be attached to models familiar to students: a nickel on a five-frame with 5 dots or pennies and a dime on a ten-frame with 10 dots or pennies.

On a number line, have students use a clothespin or marker to identify the number that is ten more than a given number or five more than a given number. Have students create and compare all the three-digit numbers that can be made using numbers from 0 to 9. For instance, using the numbers 1, 3, and 9, students will write the numbers 139, 193, 319, 391, 913 and 931. When students compare the numerals in the hundreds place, they should conclude that the two numbers with 9 hundreds would be greater than the numbers showing 1 hundred or 3 hundreds. When two numbers have the same digit in the hundreds place, students need to compare their digits in the tens place to determine which number is larger.

Key:

It is important that students not rely on using key words to solve problems. The goal is for students to make sense of the problem and understand what it is asking them to do, rather than search for "tricks" and/or guess at the operation needed to solve the problem.

Interdisciplinary Connections Technology Integration

terms

- Language Arts - Vocabulary: students will connect everyday vocabulary to strengthen their understanding of mathematical

- Language Arts - Reading Strategies: students will utilize reading comprehension skills by acting out or drawing the order of

important events in a story problem. Reading and writing stories to represent addition and subtraction
● Language Arts - Writing Strategies: students will create mathematical stories using numbers, pictures and words. ●
Language Arts - Interactive Student Notebook
● Language Arts - Read Alouds
  ● Science: work with data/make calculations involving measurements and other data across all modules
● Social Studies - Economics- connecting money as a means for

helping people buy things they need or want; complete independent/partner projects to plan and market a good or service
● **8.1.2.A.1** Identify the basic features of a digital device and explain its purpose.
● **8.1.2.E.1** Use digital tools and online resources to explore a problem or issue.
● **8.2.2.C.1** Brainstorm ideas on how to solve a problem or build a product.

Grade 2: Interdisciplinary Connections

_____ **Language Arts** _____ **Science** _____ **Social Studies** _____ **World Languages** _____ **Arts**

21ˢᵗ Century Themes

___ **Global Awareness** ___ **Financial, Economic, Business and Entrepreneurial Literacy** ___ **Civic Literacy** ___ **Health Literacy** ___ **Environmental Literacy**

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Key:

| **21ˢᵗ Century Life and Careers** | **Standards** |

Career Ready Practices:

☒ 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g.,

1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2)

☒ 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g.,

1.3A.2CR1a)

☐ 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2)

☒ 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g.,

1.2.2.CR1b, 8.2.2.ED.3

☒ 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using

the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).

☐ 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments

☒ 9.4.2.TL.2: Create a document using a word processing application

□ 9.4.2.TL.5: Describe the difference between real and virtual experiences

□ 9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job..

□ 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community

□ 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business.

Unit 2 Grade 2- Place Value Strategies for Addition and Subtraction		
Content Standards	**Suggested Standards for Mathematical Practice and P21 Skills**	**Critical Knowledge & Skills**
● 2.OA.A.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	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: ● count on and put together to add to solve one- and two-step word problems. ● take from or take apart to subtract to solve one- and two-step word problems. ● use drawings and equations to represent the problem. Learning Goal 1: Add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position.

symbol for the unknown number to represent the problem. *(benchmarked)	MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation Communication and Collaboration Information Literacy ICT Literacy	
● 2.OA.B.2. Fluently add and subtract within 20 using mental strategies. *By end of Grade 2, know from memory all sums of two one-digit numbers.* *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation Information Literacy ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● add within 10 using mental strategies with accuracy and efficiency. ● subtract within 10 using mental strategies with accuracy and efficiency. Learning Goal 2: Fluently add and subtract within 10 using mental strategies.
● 2.OA.C.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	MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning Critical Thinking and Problem Solving Creativity and Innovation Communication and Collaboration Information Literacy ICT Literacy	Concept(s): ● Even: groups having even numbers of objects will pair up evenly. ● Odd: groups having odd numbers of objects will not pair up evenly. Students are able to: ● pair up to 20 object, count by 2s and determine whether the group contains an even or odd number of objects. ● write an equation to express an even number as a sum of two equal addends. Learning Goal 3: Write an equation to express an even number as a sum of two equal addends.

| ● 2.OA.C.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 | MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. | Concept(s): ● Arrays as arrangements of objects. Students are able to: ● with objects arranged in an array, use repeated addition to find the total. ● with objects arranged in an array, write an equation to express repeated addition. |

	Critical Thinking and Problem Solving Creativity and Innovation Communication and Collaboration Information Literacy ICT Literacy	Learning Goal 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.G.A.2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	MP 2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● partition a rectangle into rows and columns of same-size squares and count to find the total number. Learning Goal 5: Partition a rectangle into rows and columns of same-size squares and count to find the total number.

● 2.NBT. B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● with accuracy and efficiency, add and subtract within 50 using strategies based on place value. ● with accuracy and efficiency, add and subtract within 50 using strategies based on properties of operations. ● with accuracy and efficiency, add and subtract within 50 using strategies based on the relationship between addition and subtraction. Learning Goal 6: Use a variety of strategies (place value, properties of operation, and/or the relationship between addition and subtraction) to add and subtract within 50.
● 2.NBT. B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● add three two digit numbers using place value strategies and properties of operations. ● add four two digit numbers using place value strategies and properties of operations. Learning Goal 7: Add up to four two -digit numbers using strategies based on place value and properties of operations.

● 2.NBT. B.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.	MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation Information Literacy ICT Literacy	Concept(s): ● In adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones. ● Sometimes it is necessary to compose or decompose tens or hundreds. Students are able to: ● add and subtract within 1000, using concrete models or drawings. ● add and subtract within 1000 using strategies based on place value. ● add and subtract within 1000 using properties of operations or the relationship between addition and subtraction. ● relate the strategies to a written method. Learning Goal 8: 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.
● 2.NBT. B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.	MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation Communication and Collaboration Information Literacy ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● Explain, using objects and drawings, why addition and subtraction strategies based on place value work. ● Explain, using objects and drawings, why addition and subtraction strategies based on properties of operations work. Learning Goal 9: After applying addition and subtraction strategies based on place value and the properties of operations, explain why these strategies work using drawings or objects [for example, 37 + 12 equals 30 + 7 + 10 + 2 (place value) which equals 30 + 10 + 7 + 2 (property of operations)].

● 2.NBT. A.2. Count within 1000; skip-count by 5s, 10s, and 100s. *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Critical Thinking and Problem Solving Creativity and Innovation	Concept(s): No new concept(s) introduced Students are able to: ● count within 1000 by ones. ● count within 1000 by fives, tens, and hundreds beginning at any multiple of 5, 10, or 100.

	ICT Literacy	Learning Goal 10: Count within 1000 by ones, fives, tens, and hundreds beginning at any multiple of 1, 5, 10, or 100 (e.g. begin at 505 and skip count by 5 up to 605, or begin at 600 and skip count by 100 up to 1000).

Unit 2 Grade 2- Place Value Strategies for Addition and Subtraction

District/School Formative Assessment Plan District/School Summative Assessment Plan Benchmark Assessment Alternative Assessment

District/School Formative Assessment Plan	District/School Summative Assessment Plan	Benchmark Assessment	Alternative Assessment
Released item sets https://sites.google.com/site/releaseditemsets/	s/Pages/Math-K-5.aspx Classwork	Mad Minutes Quick Check/Topic Quizzes	Renaissance/STAR Map Testing
formative assessment material- Engageny.org under their New York State Mathematics Curriculum Materials: https://www.engageny.org/sites/default/files/resource/attachments/g2-m1-full-module.pdf	Exit tickets White boards Individual and group work	Enrichment Tasks Homework Benchmarks	DRA Benchmark Tests within EnVision/GoMath/Eureka Math
Georgia Department of Education Grade 2- Formative Assessment Unit 1 https://www.georgiastandards.org/Georgia-Standard	Math journals Peer to Peer Discussions	Chapter tests/Fact Quiz Performance tasks Extended projects SGO's (BOY, EOY)	State Testing Results Teacher Created Assessments Performance Based Assessments Extension Projects

Focus Mathematical Concepts- Place Value Strategies for Addition and Subtraction

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Prerequisite skills:

It is expected that students will have prior knowledge/experience related to the concepts and skills identified below. It may be necessary to pre-assess in order to determine if time needs to be spent on conceptual activities that help students develop a deeper understanding of these ideas.

1.OA- Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20

1.NBT- Developing understanding of whole number relationships and place value, including grouping in tens and ones

Common Misconceptions:

Some students end their solution to a two-step problem after they complete the first step. They may have misunderstood the question or only focused on finding the first part of the problem. Students need to check their work to see if their answer makes sense in terms of the problem situation. They need many opportunities to solve a variety of two-step problems and develop the habit of reviewing their solution after they think they have finished.

Many children have misconceptions about the equal sign. Students can misunderstand the use of the equal sign even if they have proficient computational skills. The equal sign means, "is the same as" however, many primary students think that the equal sign tells you that the "answer is coming up." Students need to see examples of number sentences with an operation to the right of the equal sign and the answer on the left, so they do not over-generalize from those limited examples. They might also be predisposed to think of equality in terms of calculating answers rather than as a relation because it is easier for young children to carry out steps to find an answer than to identify relationships among quantities.

Students might rely on a key word or phrase in a problem to suggest an operation that will lead to an incorrect solution. They might think that the word left always means that subtraction must be used to find a solution. Students need to solve problems where key words are contrary to such thinking. For example, the use of the word left does not indicate subtraction as a solution method: Debbie took the 8 stickers she no longer wanted and gave them to Anna. Now Debbie has 11 stickers left. How many stickers did Debbie have to begin with? It is important that students not rely on using key words to solve problems. The goal is for students to make sense of the problem and understand what it is asking them to do, rather than search for "tricks" and/or guess at the operation needed to solve the problem.

Number Fluency:
2.OA.B.2 By end of Grade 2, know from memory all sums of two one digit numbers. * (benchmarked)
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.

Key:
District/School Tasks District/School Primary and Supplementary Resources

Released item sets
https://sites.google.com/site/releaseditemsets/

Individual and group work

formative assessment material- Engageny.org under their New York State Mathematics Curriculum Materials:
https://www.engageny.org/sites/default/files/resource/attachments/g2-m1-full-module.pd f

Math journals
Framework for 21st Century Learning

http://www.p21.org/our-work/p21-framework

Classwork

NJDOE-21st Century Life and Careers

Exit tickets

http://www.state.nj.us/education/aps/cccs/career/

White boards

Arizona flip book

http://www.katm.org/flipbooks/2%20FlipBook%20Final%20CCSS%202014.pdf

North Carolina wikispaces

Teachers Pay Teachers

Engage NY (Eureka Math)

Super Teacher Worksheets

Pinterest

On My Own (Harcourt Brace) Stretch Your Thinking

Tenmarks

http://maccss.ncdpi.wikispaces.net/Elementary

Georgia Department of Education Grade 2

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

Key:
Essential Questions

How do we represent a collection of objects using tens and ones?

How do I express money amounts?

When will estimating be helpful to us?

How can we use skip counting to help us solve problems?

Can we change the order of numbers if we subtract? Why or why not? Can we change

the order of numbers when we add (or subtract)? Why or why not? How can

estimation strategies help us build our addition skills? How do we use addition to tell

number stories?

How can benchmark numbers help us add?

How does using ten as a benchmark number help us add and subtract? What

strategies can help us when adding and subtracting with regrouping? What strategies

will help me add multiple numbers quickly and accurately? How can we solve

addition problems with and without regrouping? How can addition help us know we subtracted two numbers correctly? How can we solve subtraction problems with and without regrouping? How can strategies help us when adding and subtracting with regrouping? How can we model and solve subtraction problems with and without regrouping?

How can mental math strategies, for example estimation and benchmark numbers, help us when adding and subtracting with regrouping?

How can I use a number line to help me model how I combine and compare numbers?

How are addition and subtraction alike and how are they different?

What is a number sentence and how can I use it to solve word problems?

How do we solve problems in different ways?

How can we solve problems mentally? What strategies help us with this?

How can we show/represent problems in different ways?

How can problem situations and problem-solving strategies be represented?

How are problem-solving strategies alike and different?

How can different combinations of numbers and operations be used to represent the same quantity?

Special Education Students	English Language Learners	Students at Risk for School Failure	Gifted and Talented Students	Students with 504 Plans
● Provide a checklist for long, detailed tasks ● Use concrete examples of concepts before teaching the abstract	● Highlight important concepts to be learned in text of material ● Provide concrete examples for homework/class work	● Give additional presentations by varying the methods using ● Use enVision Spanish Resources ● Provide text to speech for math assignments	● Use of translation dictionary or software ● Confer frequently ● Adapt a Strategy-Adjusting problems	strategies for ESL students: http://www.teachersfirst.com/content/esl/adaptstrat.cfm ● Tiered interventions following RTI framework

● RTI Intervention Bank ● NJDOE resources
● Utilize online resources such as www.tenmarks.com
● EnVision K-5 intervention supports

repetition,simplerexplanations andmodeling
●Givewrittendirectionsto supplementverbaldirections
●Familiarizestudentwithnew vocabularybeforebeginning lesson
●Utilizevisualaidsandgraphic organizers
●Utilizemanipulative,hands-on activities
●Providegraphpaperfor computation
●Additionaltimetocomplete activities/assignments/projects/assessments
●Modifyorprovideanoptionfor alternative activities/assignments/projects/assessments
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●Individual Intervention/Remediation
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●GuidedNotesorcopyofteacher notes
●Reviewprerequisiteskills
●AfterSchoolTutoring

● Modify activities/assignments/projects/assessments
● Provide an option for alternative activities/assignments/projects/assessments

●Familiarizestudentwith new vocabularybeforebeginning lesson
●Utilizevisualaidsandgraphic organizers
●Utilizemanipulative,hands-on activities

●GuidedNotesorcopyofteacher notes

●AdditionalSupportMaterials/ Onlineresources

●Review prerequisiteskills
●http://w

● Provide higher-order questioning and discussion opportunities ● Utilize exploratory connections to higher grade concepts
● Modify Content
● Adjust Pacing of Content

ww.wida. us/standards/el p.aspx
●SmallGroupEnrichment
●IndividualEnrichment
●Higher-LevelText
●Providewholegroupenrichment explorations
●Teachcognitiveand methodologicalskills
●Usecenter,stations,orcontracts ●Organizeintegrated problem-solvingsimulations
●Proposeinterest-basedextension activities
●Createanenhancedsetof introductoryactivities(e.g. advance organizers, concept maps,conceptpuzzles
●Provideoptions,alternativesand choicestodifferentiateand broadenthecurriculum
●Proposeindependentprojects basedonindividualinterests
●AdditionalSupportMaterials/ Onlineresources
●Afterschoolclubs

● Provide a checklist for long, detailed tasks
● Use concrete examples of concepts before teaching the abstract
● Highlight important concepts to be

learned in text of material ● Provide concrete examples for homework/class work assignments
● Give additional presentations by varying the methods using

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●Reviewprerequisiteskills   ●AfterSchoolTutoring

Key:
● Chunk
activities/assignments/projects/as
sessments into manageable units
● Allow student to receive reading
text in various forms (written,
verbal, audio) r on a lower
reading level
● Allow student to make test
corrections or retake assessment
● Adjust Pacing of Content
● See IEPs of students for specific
modifications

Vocabulary Ongoing Modifications
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forms (written, verbal, audio) r on a lower
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● Allow student to make test corrections or retake assessment ● Adjust Pacing of Content ● See 504 plan for specific
accommodations

Differentiated centers

Extra time on task

Limited # of items

Flashcards

Manipulatives

Number lines

Building the language of mathematics

http://maccss.ncdpi.wikispaces.net/file/view/2014+Building+Vocabulary.pdf
Georgia Department of Education Grade 2 Intervention Table

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.a spx

Anchor charts

Number charts

Reteaching tasks

Extra time on task

Key:

Instructional Best Practices and Exemplars

Working on addition and subtraction simultaneously, continually relating the two operations is important for helping students recognize and understand the (inverse) relationship of these two operations. It is also vital that students develop the habit of checking their answer to a problem to determine if it makes sense for the situation and the questions being asked. An excellent way to do this is to ask students to write word problems for their classmates to solve. A good place to start is by giving students the answer to a problem. Then tell students whether you want them to write an addition or subtraction problem situation. Also, let them know that the sums and differences can be less than or equal to 100. For example, ask students to write an addition word problem for their classmates to solve which requires adding four two-digit numbers with 100 as the answer. Students then share, discuss and compare their solution strategies after they solve the problems.

The strategies that students use to solve problems provide important information concerning number sense and place value understandings therefore it is important to look at more than answers students get. The strategies students use provide useful information about what problems to give the next day and how to differentiate instruction. Student-created strategies provide reinforcement of place value concepts.

Key:
 Teaching traditional algorithms can actually hinder the development of conceptual knowledge of our place value system; whereas student created strategies are built on a student's actual understanding, instead of on what the book says or what we think/hope they know. Students make fewer errors with their own invented strategies because they are built on their own understanding rather than memorization.

2.G.2 calls for students to partition a rectangle into squares (or square-like regions) and then determine the total number of squares. This relates to the standard 2.OA.4 where students are arranging objects in an array of rows and columns. Modeling repeated addition with partitioned rectangles provides the foundation for student understanding of multiplication. While discussions of multiplication may arise as an offshoot of work in this standard, the emphasis should be on understanding repeated addition through the array model.

Interdisciplinary Connections Technology Integration

- Language Arts - Vocabulary: students will connect everyday vocabulary to strengthen their understanding of mathematical terms
- Language Arts - Reading Strategies: students will utilize reading comprehension skills by acting out or drawing the order of important events in a story problem. Reading and writing stories to represent addition and subtraction
- Language Arts - Writing Strategies: students will create mathematical stories using numbers, pictures and words. ● Language Arts - Interactive Student Notebook
- Language Arts - Read Alouds

- Science: work with data/make calculations involving measurements and other data across all modules
- Social Studies - Economics- connecting money as a means for helping people buy things they need or want; complete independent/partner projects to plan and market a good or service
  - **8.1.2.A.1** Identify the basic features of a digital device and explain its purpose.
  - **8.1.2.E.1** Use digital tools and online resources to explore a problem or issue.
  - **8.2.2.C.1** Brainstorm ideas on how to solve a problem or build a product.

Grade 2: Interdisciplinary Connections

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___ **Global Awareness** ___ **Financial, Economic, Business and Entrepreneurial Literacy** ___ **Civic Literacy** ___ **Health Literacy** ___ **Environmental Literacy**

21ˢᵗ Century Life and Careers Standards

Career Ready Practices:

☒ 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2)

☒ 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a)

☐ 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2)

☒ 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3

☒ 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).

☐ 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments

☒ 9.4.2.TL.2: Create a document using a word processing application

☐ 9.4.2.TL.5: Describe the difference between real and virtual experiences

☐ 9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with

each job..

☐ 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community

☐ 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business

Unit 3 Grade 2- Measurement		
Content Standards Mathematical Practice Standards and P21 Skills		**Critical Knowledge & Skills**
● 2.MD.A.1. Measure the length of an object by selecting and using appropriate tools such as rulers,	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): No new concept(s) introduced Students are able to: ● measure lengths of objects using rules, yardsticks, meter sticks and measuring tapes.

yardsticks, meter sticks, and measuring tapes.	MP.7 Look for and make use of structure. Communication and Information Literacy ICT Literacy Critical Thinking and Problem Solving	Leaning Goal 1: Estimate lengths of objects and measure lengths of objects using appropriate tools.

● 2.MD.A.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.	MP 2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. Communication and Collaboration Information Literacy ICT Literacy Critical Thinking and Problem Solving	Concept(s): No new concept(s) introduced Students are able to: ● measure the length of an object using different units of measure. ● compare the measurements and explain how they relate to each unit. Learning Goal 2: Compare measurements of an object taken with two different units of measure and describe how the two measurements relate to the size of the unit chosen.
● 2.MD.A.3. Estimate lengths using units of inches, feet, centimeters, and meters	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. Communication and Information Literacy ICT Literacy Critical Thinking and Problem Solving	Concept(s): No new concept(s) introduced Students are able to: ● estimate lengths of objects. Leaning Goal 1: Estimate lengths of objects and measure lengths of objects using appropriate tools.
● 2.MD.A.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard-length unit.	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. Creativity and Innovation ICT Literacy	Concept(s): No new concept(s) introduced Students are able to: ● Measure objects, comparing to determine how much longer one object is than another. ● Express the difference in length in terms of a standard unit of measure.

		Learning Goal 3: Compare lengths of two objects and determine how much longer one object is than the other using a standard unit of measure.
● 2.MD.B.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 *For example, if Angela needs 30 feet of ribbon for gifts, but she only has 17 feet, number sentences 17 + □ = 30 and 30 - □ = 17 both represent the situation and □ represents the number of feet of ribbon that she still needs.*	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. ICT Literacy Critical Thinking and Problem Solving Creativity and Innovation	Concept(s): No new concept(s) introduced Students are able to: ● add and subtract, within 100, to solve word problems involving lengths (lengths are given in the same units). ● use drawings to represent the problem. ● use number sentences with a symbol for the unknown to represent the problem. Learning Goal 4: Add and subtract within 100 to solve word problems involving lengths using a symbol to represent the unknown number.
● 2.MD.B.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.	MP.4 Model with mathematics. MP 2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically. Communication and Information Literacy ICT Literacy Critical Thinking and Problem Solving	Concept(s): No new concept(s) introduced Students are able to: ● use equally spaced points of a number line to represent whole numbers as lengths from 0. ● represent whole number sums within 100 on a number line diagram. ● represent whole number differences within 100 on a number line diagram. Learning Goal 5: Use a number line to represent the solution of whole number sums and differences related to length within 100.
● 2.MD.C.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. ICT Literacy Communication and Information Literacy	Concept(s): No new concept(s) introduced Students are able to: ● use analog and digital clocks, tell time to the nearest five minutes using a.m. and p.m. ● use analog and digital clocks, write time to the nearest five minutes using a.m. and p.m. Learning Goal 6: Tell and write time using analog and digital clocks to the nearest five minutes using a.m. and p.m.

● 2.NBT. A.2. Count within 1000; skip-count by 5s, 10s, and 100s. *(benchmarked)	MP 2 Reason abstractly and quantitatively.	Concept(s): No new concept(s) introduced Students are able to: ● count within 1000 by ones.

	MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Creativity and Innovation ICT Literacy Critical Thinking and Problem Solving	● count within 1000 by fives, tens, and hundreds beginning at any multiple of 5, 10, or 100. Learning Goal 7: Orally count within 1000 including skip-counting by 5s, 10s, and 100s

● 2.NBT. B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)	MP 2 Reason abstractly and quantitatively.
	MP.7 Look for and make use of structure.
	MP.8 Look for and express regularity in repeated reasoning.
	
	Creativity and Innovation
	ICT Literacy
	Critical Thinking and Problem Solving
		Concept(s):
		    ● Place value
		    ● Relationship between addition and subtraction
		    ● Properties of Operations
		Students are able to:
		    ● add and subtract within 100 using place value strategies.
		    ● add and subtract within 100 using properties of operations and the relationship between addition and subtraction.
		
		Learning Goal 8: Select and use a strategy (place value, properties of operation, and/or the relationship between addition and subtraction) to add and subtract within 1

Unit 3 Grade 2- Measurement

District/School Formative Assessment Plan District/School Summative Assessment Plan Benchmark Assessment Alternative Assessment

District/School Formative Assessment Plan	District/School Summative Assessment Plan	Benchmark Assessment	Alternative Assessment
Released item sets https://sites.google.com/site/releaseditemsets/ formative assessment material- Engageny.org under	their New York State Mathematics Curriculum Materials: https://www.engageny.org/sites/default/files/resource/at tachments/g2-m1-full-module.pdf Georgia Department of Education Grade 2-	Formative Assessment Benchmarks Chapter tests/Fact Quiz Performance tasks Extended projects SGO's (BOY, EOY)	Renaissance/STAR Map Testing DRA

Benchmark Tests within EnVision/GoMath/Eureka Math/iReady

State Testing Results
Teacher Created Assessments Performance Based

Assessments Extension Projects

Key: https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

Classwork

Exit tickets

White boards

Individual and group work

Math journals

Peer to Peer Discussions

Mad Minutes

Quick Check/Topic Quizzes

Enrichment Tasks

Homework

Focus Mathematical Concepts- Measurements

Prerequisite skills:

1.NBT. B.2c
1.NBT.C.4
1.NBT.C.5
1.NBT.C.6
1.MD.A.1
1.MD.A.2
1.MD.B.3
1.OA.C.6

In first grade, students learned to tell time to the nearest hour and half-hour. Students build on this understanding in second grade by skip-counting by 5 to recognize 5-minute intervals on the clock. They need exposure to both digital and analog clocks.

Common Misconceptions:
When some students see standard rulers with numbers on the markings, they believe that the numbers are counting the marks instead of the units or spaces between the marks. Have students use informal or standard length units to make their own rulers by marking each whole unit with a number in the middle. They will see that the ruler is a representation of a row of units and focus on the spaces. Some students might think that they can only measure lengths with a ruler starting at the left edge. Provide situations where the ruler does not start at zero. For example, a ruler is broken and the first inch number that can be seen is 2. If a pencil is measured and it is 9 inches on this ruler, the students must subtract 2 inches from the 9 inches to adjust for where the measurement started.

Some student become confused when the ruler they are using have both customary and metric measures on it. By covering on scale with masking tape the student becomes less confused.

Some students might confuse the hour and minutes hands. For the time of 3:45, they say the time is 9:15. Also, some students name the numeral closest to the hands, regardless of whether this is appropriate. For instance, for the time of 3:45 they say the time is 3:09 or 9:03. One way to avoid this confusion is to use Dr. John Van de Walle's strategy of using a one-handed clock to begin telling time. This gets students to focus on the hour hand first. It also helps them understand that the hour hand gives the most significant information when telling time.

Number Fluency:
2.OA.B.2 By end of Grade 2, know from memory all sums of two one digit numbers.* (benchmarked)
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.
District/School Tasks District/School Primary and Supplementary Resources

Released item sets
https://sites.google.com/site/releaseditemsets/

https://www.engageny.org/sites/default/files/resource/attachments/g2-m1-

formative assessment material- Engageny.org under their New York State Mathematics Curriculum Materials:

full-module.pdf Classwork

Framework for 21st Century Learning http://www.p21.org/our-work/p21- Key:

framework NJDOE-21st Century Life and Careers

http://www.state.nj.us/education/aps/cccs/career/ Arizona flip book

Exit tickets	http://www.katm.org/flipbooks/2%20FlipBook%20Final%20CCSS%202014.pdf North
White boards	Carolina wikispaces
Individual and group work Math journals	Teachers Pay Teachers
	Engage NY (Eureka Math)
	Super Teacher Worksheets
	Pinterest
	On My Own (Harcourt Brace) Stretch Your Thinking
	Tenmarks
	http://maccss.ncdpi.wikispaces.net/Elementary
	Georgia Department of Education Grade 2
	https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

Essential Questions

How can we decide on appropriate units of measurement (i.e. inch, foot, yard, centimeter, meter, seconds, minutes, hours, days)? Why

is it important for us to know how to measure different objects using different tools of measurement? How can we tell if an estimate is

reasonable?

How does using a different unit change our measurement?

Why do we need to be able to estimate a measurement or value?

Why is it important for us to know how to measure different units of measurement?

Special Education Students English Language Learners Students at Risk for School Failure Gifted and Talented Students Students with 504 Plans

Special Education Students	English Language Learners	Students at Risk for School Failure	Gifted and Talented Students	Students with 504 Plans
● Provide a checklist for long, detailed tasks ● Use concrete examples of concepts before teaching the abstract ● Highlight important concepts to be learned in text of material ● Provide concrete examples for homework/class work assignments ● Give additional presentations by varying the methods using repetition, simpler explanations and modeling ● Give written directions to supplement verbal directions ● Familiarize student with new vocabulary before beginning lesson ● Utilize visual aids and graphic organizers ● Utilize manipulative, hands-on activities	● Provide graph paper for computation ● Additional time to complete activities/assignments/projects/assessments ● Use enVision Spanish Resources ● Provide text to speech for math problems ● Use of translation dictionary or software ● Confer frequently ● Adapt a Strategy-Adjusting strategies for ESL students: http://www.teachersfirst.com/cont ent/esl/adaptstrat.cfm ● Familiarize student with new vocabulary before beginning lesson ● Utilize visual aids and graphic organizers ● Utilize manipulative, hands-on activities ● Additional Support Materials/	Online resources ● Guided Notes or copy of teacher notes ● Review prerequisite skills ● http://www.wida.us/standards/elp.aspx ● Tiered interventions following RTI framework ● RTI Intervention Bank ● NJDOE resources ● Utilize online resources such as www.tenmarks.com ● EnVision K-5 intervention supports ● Modify activities/assignments/projects/assessments ● Provide an option for alternative activities/assignments/projects/assessments ● Provide higher-order questioning and discussion opportunities ● Utilize exploratory connections to higher grade	concepts ● Modify Content ● Adjust Pacing of Content ● Small Group Enrichment ● Individual Enrichment ● Higher-Level Text ● Provide whole group enrichment explorations ● Teach cognitive and methodological skills ● Use center, stations, or contracts ● Organize integrated problem-solving simulations ● Propose interest-based extension activities ● Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles ● Provide a checklist for long, detailed tasks ● Use concrete examples of concepts before teaching the	abstract ● Highlight important concepts to be learned in text of material ● Provide concrete examples for homework/class work assignments ● Give additional presentations by varying the methods using repetition, simpler explanations and modeling ● Give written directions to supplement verbal directions ● Familiarize student with new vocabulary before beginning lesson ● Utilize visual aids and graphic organizers ● Utilize manipulative, hands-on activities ● Provide graph paper for computation ● Additional time to complete activities/assignments/projects/assessments

● Modify or provide an option for alternative activities/assignments/projects/as

sessments
● Small Group Instruction/Intervention/Remedia

tion
● Individual Intervention/Remediation

● Additional Support Materials/ Online resources
● Guided Notes or copy of teacher notes
● Review prerequisite skills
● After School Tutoring
● Chunk activities/assignments/projects/as sessments into manageable units
● Allow student to receive reading text in various forms (written, verbal, audio) r on a lower reading level
● Allow student to make test corrections or retake assessment
● Adjust Pacing of Content

● See IEPs of students for specific modifications

Vocabulary Ongoing Modifications
● Provide options, alternatives and choices to differentiate and

broaden the curriculum
● Propose independent projects based on individual interests ● Additional Support Materials/ Online resources
● After school clubs
● Tiered centers
● Tiered assignments

● Modify or provide an option for alternative activities/assignments/projects/as sessments
● Small Group Instruction/Intervention/Remedia tion
● Individual Intervention/Remediation
● Additional Support Materials/ Online resources
● Guided Notes or copy of teacher notes
● Review prerequisite skills ● After School Tutoring
● Chunk activities/assignments/projects/as sessments into manageable units ● Allow student to receive reading text in various forms (written, verbal, audio) r on a lower reading level
● Allow student to make test corrections or retake assessment ● Adjust Pacing of Content ● See 504 plan for specific accommodations

Building the language of mathematics

http://maccss.ncdpi.wikispaces.net/file/view/2014+Building+Vocabulary.pdf **Instructional Best Practices and Exemplars**

Georgia Department of Education Grade 2 Intervention Table

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K 5.aspx

Differentiated centers

Extra time on task

Limited # of items

Flashcards

Manipulatives

Number lines

Anchor charts

Number charts

Reteaching tasks

ELL:

http://www.wida.us/standards/elp.aspx

NJ Model Curriculum:

https://www.state.nj.us/education/bilingual/curriculum/

Achieve the Core:

https://achievethecore.org/aligned/ccss-aligned-materials-for-ell-stud ents/

Key:

Second graders are transitioning from measuring lengths with informal or nonstandard units to measuring with these standard units: inches, feet, centimeters, and meters. The measure of length is a count of how many units are needed to match the length of the object or distance being measured.

Emphasize that the space is what is being measured, not the tic marks on the ruler. Students have to understand what a length unit is and how it is used to find a measurement. They need many experiences measuring lengths with appropriate tools so they can become very familiar with the standard units and estimate lengths.

Use language that reflects the approximate nature of measurement, such as the length of the room is about 26 feet. Insist that students always estimate lengths before they measure.

Estimation helps them focus on the attribute to be measured, the length units, and the process. After they find measurements, have students discuss the estimates, their procedures for finding the measurements and the differences between their estimates and the measurements.

Rulers that have only one system (either customary or metric) work most effectively with student beginning this stage of learning to measure.

Students should understand that there are 2 cycles of 12 hours in a day - a.m. and p.m. Recording their daily actions in a journal would be helpful for making real-world connections and understanding the difference between these two cycles.

Interdisciplinary Connections Technology Integration

- Language Arts - Vocabulary: students will connect everyday vocabulary to strengthen their understanding of mathematical terms
- Language Arts - Reading Strategies: students will utilize reading comprehension skills by acting out or drawing the order of important events in a story problem. Reading and writing stories to represent addition and subtraction
- Language Arts - Writing Strategies: students will create mathematical stories using numbers, pictures and words. ●
Language Arts - Interactive Student Notebook

- Language Arts - Read Alouds
  - Science: work with data/make calculations involving measurements and other data across all modules
- Social Studies - Economics- connecting money as a means for
  - **8.1.2.A.1** Identify the basic features of a digital device and explain its purpose.
  - **8.1.2.E.1** Use digital tools and online resources to explore a problem or issue.
  - **8.2.2.C.1** Brainstorm ideas on how to solve a problem or build a product.

Key:
helping people buy things they need or want; complete independent/partner projects to plan and market a good or service

<table>
<tr><td colspan="1">Grade 2: Interdisciplinary Connections

____ Language Arts ____ Science ____ Social Studies ____ World Languages ____ Arts</td></tr>
<tr><td>21st Century Themes

___ Global Awareness ___ Financial, Economic, Business and Entrepreneurial Literacy ___ Civic Literacy ___ Health Literacy ___ Environmental Literacy</td></tr>
</table>

21st Century Life and Careers Standards

<u>**Career Ready Practices:**</u>

☒ 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g.,

1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2)

☒ 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g.,

1.3A.2CR1a)

☐ 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2)

☒ 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g.,

1.2.2.CR1b, 8.2.2.ED.3

☒ 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using

the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).

☐ 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments

☒ 9.4.2.TL.2: Create a document using a word processing application

☐ 9.4.2.TL.5: Describe the difference between real and virtual experiences

☐ 9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job..

☐ 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community

☐ 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business

Unit 4 Grade 2- Reason with Shapes and Represent Data		
Content Standards Mathematical Practices and P21 Skills		**Critical Knowledge & Skills**
● 2.G.A.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.	MP 2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.8 Look for and express regularity in repeated reasoning. ICT Literacy Creativity and Innovation Critical Thinking and Problem Solving	Concept(s): No new concept(s) introduced Students are able to: ● draw shapes having specified attributes (e.g. number of equal faces, number of angles) ● identify triangles, quadrilaterals, pentagons, hexagons, and cubes. Learning Goal 1: 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.A.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.	MP.4 Model with mathematics. MP.7 Look for and make use of structure. Communication and Collaboration Creativity and Innovation Critical Thinking and Problem Solving	Concept(s): ● Equal shares of identical wholes need not have the same shape. Students are able to: ● partition rectangles into two, three, or four equal shares. ● partition two same-sized rectangles to show that equal shares of identical wholes need not have the same shape. ● describe the shares using the words halves, thirds, fourths, half of, a third of, a fourth of, etc. ● recognize and then describe the whole as two halves, three thirds, four fourths. Learning Goal 2: 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, and four fourths.
● 2.MD.C.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics.	Concept(s): ● Know the value of dollar bills, quarters, dimes, nickels, and pennies. Students are able to: ● identify dollar bills, quarters, dimes, nickels, and pennies. ● using dollar bills, quarters, dimes, nickels, and pennies, count to determine the total amount of money.

Example: If you have 2 dimes and 3 pennies, how many cents do you have?	MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning. ICT Literacy Critical Thinking and Problem Solving Creativity and Innovation Communication and Collaboration	● solve word problems involving dollar bills, quarters, dimes, nickels, and pennies. Learning Goal 3: Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using the $ and ¢ symbols appropriately.
● 2.MD.D.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.	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.8 Look for and express regularity in repeated reasoning. ICT Literacy Critical Thinking and Problem Solving Creativity and Innovation Communication Information Literacy	Concept(s): ● Generate data. Students are able to: ● generate measurement data by measuring lengths, to the nearest whole unit, of several objects or by making repeated measurements of the same object. ● record the measurements in a line plot having a horizontal scale in whole number units. Learning Goal 4: Use tools of measurement to measure lengths of several objects to the nearest whole unit and represent the data on a line plot with appropriate whole number units on the horizontal scale.
● 2.MD.D.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.	MP.1 Make sense of problems and persevere in solving them. MP 2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.8 Look for and express regularity in repeated reasoning. Creativity and Innovation Communication and Collaboration Information Literacy ICT Literacy Critical Thinking and Problem Solving	Concept(s): No new concept(s) introduced Students are able to: ● draw a picture graph to represent a data set with up to four categories. ● draw a bar graph to represent a data set with up to four categories. ● use information in a bar graph to solve simple put together, take apart, and compare problems. Learning Goal 5: 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 the graph.

● 2.OA.B.2. Fluently add and subtract within 20 using mental strategies. *By end of Grade 2, know from memory all sums of two one-digit numbers.* *(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Creativity and Innovation Critical Thinking and Problem Solving Information Literacy	Concept(s): No new concept(s) introduced Students are able to: ● add within 20 using mental strategies with accuracy and efficiency. ● subtract within 20 using mental strategies with accuracy and efficiency. Learning Goal 6: Fluently add and subtract within 20 using mental strategies.
● 2.NBT. B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.*(benchmarked)	MP 2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning. Creativity and Innovation Critical Thinking and Problem Solving Information Literacy	Concept(s): No new concept(s) introduced Students are able to: ● with accuracy and efficiency, add and subtract within 100 using place value strategies, properties of operations and/or the relationship between addition and subtraction. Learning Goal 7: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Unit 4 Grade 2- Reason with Shapes and Represent Data

District/ School Formative Assessment Plan District/School Summative Assessment Plan

Released item sets
https://sites.google.com/site/releaseditemsets/

Formative assessment material- Engageny.org under their New York State Mathematics Curriculum Materials:
https://www.engageny.org/sites/default/files/resource/attachm

ents/g2-m1-full-module.pdf

Georgia Department of Education Grade 2- Formative Assessment
https://www.georgiastandards.org/Georgia-

Standards/Pages/Math-K-5.aspx Classwork

Exit tickets

White boards

Individual and group work

Math journals

Peer to Peer Discussions

Mad Minutes

Quick Check/Topic Quizzes

Enrichment Tasks

Homework
Benchmarks

Chapter tests/Fact Quiz Performance tasks Extended projects

SGO's (BOY, EOY)

Benchmark Assessment Alternative Assessment Renaissance/STAR Teacher Created Assessments

Key:

Map Testing

DRA

Benchmark Tests within EnVision/GoMath/Eureka

Math/iReady State Testing Results

Performance Based Assessments Extension Projects

Focus Mathematical Concepts- Reason with Shapes and Represent Data

Prerequisite skills:

1.G.A.1
1.G.A.2
1.G.A.3
1.OA.A.1*
1.OA.C.6*
1.NBT.A.1*
   1.NBT.C.4

Common Misconceptions:

The attributes for the same kind of object can vary. This will cause equal values in an object graph to appear unequal. For example, when making an object graph using shoes for boys and girls, five adjacent boy shoes would likely appear longer than five adjacent girl shoes. To standardize the objects, place the objects on the same-sized construction paper or sticky-note, then make the object graph.

Some students may think that a shape is changed by its orientation. They may see a rectangle with the longer side as the base, but claim that the same rectangle with the shorter side as the base is a different shape. This is why is it so important to have young students handle shapes and physically feel that the shape does not change regardless of the orientation.If students are only shown equilateral triangles then when they see scalene or isosceles triangles, they do not recognize them as triangles even though they have three sides. So you must make sure you are always showing students various types of shapes and not just the regular shapes that they see in pattern blocks and on posters.

Number Fluency:

2.OA.B.2 By end of Grade 2, know from memory all sums of two one digit numbers. * (benchmarked)
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.

District/School Tasks District/School Primary and Supplementary Resources Released item sets

https://sites.google.com/site/releaseditemsets/

Georgia Department of Education Grade 2- Formative Assessment

formative assessment material- Engageny.org under their New York State Mathematics
https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx
Curriculum Materials:

  https://www.engageny.org/sites/default/files/resource/attachments/g2-m1-full-module.pdfClasswork

Exit tickets

White boards

Individual and group work

Math journals

NJDOE-21st Century Life and Careers

http://www.state.nj.us/education/aps/cccs/career/

Arizona flip book

http://www.katm.org/flipbooks/2%20FlipBook%20Final%20CCSS%202014.pdf

North Carolina wikispaces

Teachers Pay Teachers

Engage NY (Eureka Math)

Super Teacher Worksheets

Pinterest

On My Own (Harcourt Brace) Stretch Your Thinking

Tenmarks

http://maccss.ncdpi.wikispaces.net/Elementary

Georgia Department of Education Grade 2

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx

Essential Questions

How can I keep track of an amount?
    Framework for 21st Century Learning

    http://www.p21.org/our-work/p21-framework

Key:
How can I learn to quickly calculate sums in my head?

How can I use a number line to add or subtract?

How can I use a number line to figure out 10 more or less than a number?

How can I use data to help me understand the answers to the questions posed?

How can place value help us locate a number on the number line?

How can we select among the most useful mental math strategies for the task we are trying to solve?

How do we know if we have enough money to buy something?

How does mental math help us calculate more quickly and develop an internal sense of numbers?

If we have two or more numbers, how do we know which is greater?

In what type of situations do we add? In what type of situations do we add?

In what type of situations do we subtract?

What are the different ways we can represent an amount of money?

What are the different ways we can show or make (represent) a number?

How can we use a picture graph, bar graph, chart, or table to organize data and answer questions?

Special Education Students	English Language Learners	Students at Risk for School Failure	Gifted and Talented Students	Students with 504 Plans
● Provide a checklist for long, detailed tasks ● Use concrete examples of concepts before teaching the	abstract ● Use enVision Spanish Resources ● Provide text to speech for math problems ● Use of translation dictionary or	software ● Tiered interventions following RTI framework ● RTI Intervention Bank ● NJDOE resources	● Modify activities/assignments/projects/as sessments ● Provide a checklist for long, detailed tasks	● Use concrete examples of concepts before teaching the abstract

● Highlight important concepts to be learned in text of material ● Provide concrete examples for homework/class work assignments ● Give additional presentations by varying the methods using	repetition, simpler explanations and modeling ● Give written directions to supplement verbal directions ● Familiarize student with new vocabulary before beginning lesson ● Utilize visual aids and graphic	organizers ● Utilize manipulative, hands-on activities ● Provide graph paper for computation ● Additional time to complete activities/assignments/projects/as	sessments ● Modify or provide an option for alternative activities/assignments/projects/as sessments ● Small Group Instruction/Intervention/Remedia	tion ● Individual Intervention/Remediation ● Confer frequently ● Adapt a Strategy-Adjusting strategies for ESL students: http://www.teachersfirst.com/con

tent/esl/adaptstrat.cfm
- Familiarize student with new vocabulary before beginning lesson
- Utilize visual aids and graphic organizers
- Utilize manipulative, hands-on activities
- Additional Support Materials/ Online resources
- Guided Notes or copy of teacher notes
- Review prerequisite skills ●
  http://www.wida.us/standards/elp.aspx
  - Utilize online resources such as www.tenmarks.com
  - EnVision K-5 intervention

supports
- Provide an option for alternative activities/assignments/projects/assessments
- Provide higher-order questioning and discussion opportunities ● Utilize exploratory connections to higher grade concepts
- Modify Content
- Adjust Pacing of Content ● Small Group Enrichment ● Individual Enrichment
- Higher-Level Text
- Provide whole group enrichment explorations
- Teach cognitive and methodological skills

- Use center, stations, or contracts ● Organize integrated problem-solving simulations ● Propose interest-based extension activities
- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles
  - Provide options, alternatives and choices to differentiate and broaden the curriculum
  - Propose independent projects based on individual interests ● Additional Support Materials/ Online resources
- After school clubs

- Highlight important concepts to be learned in text of material ● Provide concrete examples for homework/class work assignments
  - Give additional presentations by varying the methods using repetition, simpler explanations and modeling
- Give written directions to supplement verbal directions ● Familiarize student with new vocabulary before beginning lesson
- Utilize visual aids and graphic organizers
- Utilize manipulative, hands-on activities

- Provide graph paper for computation
- Additional time to complete activities/assignments/projects/assessments
- Modify or provide an option for alternative activities/assignments/projects/assessments
- Small Group Instruction/Intervention/Remediation
- Individual Intervention/Remediation

53 | Page Key:

- Additional Support Materials/ Online resources
- Guided Notes or copy of teacher notes
- Review prerequisite skills
- After School Tutoring
- Chunk activities/assignments/projects/assessments into manageable units
- Allow student to receive reading text in various forms (written, verbal, audio) r on a lower

reading level
- Allow student to make test corrections or retake assessment
- Adjust Pacing of Content
- See IEPs of students for specific modifications

Vocabulary Ongoing Modifications

- Tiered centers ● Tiered assignments
- Additional Support Materials/ Online resources
- Guided Notes or copy of teacher notes
- Review prerequisite skills ● After School Tutoring
- Chunk activities/assignments/projects/assessments into manageable units ● Allow student to receive reading text in various forms (written, verbal, audio) r on a lower reading level
- Allow student to make test corrections or retake assessment ● Adjust Pacing of Content ● See 504 plan for specific accommodations

http://maccss.ncdpi.wikispaces.net/file/view/2014+Building+Vocabulary.pdf

Georgia Department of Education Grade 2 Intervention Table

https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.as px

Differentiated centers

Extra time on task

Building the language of mathematics

Key:

Limited # of items

Flashcards

Manipulatives

Number lines

Anchor charts

Number charts

Reteaching tasks

ELL:

http://www.wida.us/standards/elp.aspx

NJ Model Curriculum:

https://www.state.nj.us/education/bilingual/curriculum/

Achieve the Core:

https://achievethecore.org/aligned/ccss-aligned-materials-for-ell-student s/

Instructional Best Practices and Exemplars

The topic of money begins at Grade 2 and builds on the work in other clusters in this and previous grades. Help students learn money concepts and solidify their understanding of other topics by providing activities where students make connections between them. For instance, link the value of a dollar bill as 100 cents to the concept of 100 and counting within 1000. Use play money - nickels, dimes, and dollar bills to skip count by 5s, 10s, and 100s. Reinforce place value concepts with the values of dollar bills, dimes, and pennies. Students use the context of money to find sums and differences less than or equal to 100 using the numbers 0 to 100.

 They add and subtract to solve one- and two-step word problems involving money situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. Students use drawings and equations with a symbol for the unknown number to represent the problem. The dollar sign, $, is used for labeling whole-dollar amounts without decimals, such as $29. Students need to learn the relationships between the values of a penny, nickel, dime, quarter and dollar bill.

At first, students should create real object and picture graphs so each row or bar consists of countable parts. These graphs show items in a category and do not have a numerical scale. For example, a real object graph could show the students' shoes (one shoe per student) lined end to end in horizontal or vertical rows by their color. Students would simply count to find how many shoes are in each row or bar. The graphs should be limited to 2 to 4 rows or bars. Students would then move to making horizontal or vertical bar graphs with two to four categories and a single unit scale.

Geosticks, geoboards, interactive whiteboards and document cameras may be used to help identify shapes and their attributes. Shapes should be presented in a variety of orientations and configurations.

Interdisciplinary Connections Technology Integration

- Language Arts - Vocabulary: students will connect everyday vocabulary to strengthen their understanding of mathematical terms
- Language Arts - Reading Strategies: students will utilize reading comprehension skills by acting out or drawing the order of important events in a story problem. Reading and writing stories to represent addition and subtraction
- Language Arts - Writing Strategies: students will create mathematical stories using numbers, pictures and words. ●
Language Arts - Interactive Student Notebook
- Language Arts - Read Alouds

- Science: work with data/make calculations involving measurements and other data across all modules
- Social Studies - Economics- connecting money as a means for helping people buy things they need or want; complete independent/partner projects to plan and market a good or service
  - **8.1.2.A.1** Identify the basic features of a digital device and explain its purpose.
  - **8.1.2.E.1** Use digital tools and online resources to explore a problem or issue.
  - **8.2.2.C.1** Brainstorm ideas on how to solve a problem or build a product.

Key:

Key: