Branchburg Township Public Schools

Office of Curriculum and Instruction

Grade 2 Math Curriculum

Adopted by the Board of Education October 2022

This curriculum is aligned with the 2016 New Jersey Student Learning Standards in Mathematics

Curriculum Scope and Sequence			
Content Area	Mathematics	**Course Title/Grade Level:**	2nd Grade

Topic/Unit Name		Suggested Pacing (Days)
Topic/Unit #1	Establish Routines/Math Practices & Readiness Fluently Add and Subtract within 20	21
Topic/Unit #2	Work with Equal Groups	7
Topic/Unit #3	Add Within 100 Using Strategies	10
Topic/Unit #4	Fluently Add Within 100	11
Topic/Unit #5	Subtract Within 100 Using Strategies	11
Topic/Unit #6	Fluently Subtract Within 100	9
Topic/Unit #7	More Solving Problems Involving Addition and Subtraction	11
Topic/Unit #8	Work with Time and Money	10
Topic/Unit #9	Numbers to 1,000	13
Topic/Unit #10	Add Within 1,000 Using Models and Strategies	9
Topic/Unit #11	Subtract Within 1,000 Using Models and Strategies	9
Topic/Unit #12	Measuring Length	11
Topic/Unit #13	Shapes and Their Attributes	11
Topic/Unit #14	More Addition, Subtraction, and Length	7
Topic/Unit #15	Graphs and Data	9

Topic/Unit 1 Title	1: Establish Routines/Math Practices & Readiness Fluently Add and Subtract Within 20	Approximate Pacing	21 days Early Sept. - Early Oct.

STANDARDS

NJSLS Mathematics

2.OA.B2: Fluently add and subtract within 10 using mental math strategies. By the end of Grade 2, know from memory all sums of 2 one-digit numbers.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
SL.2.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. (Example: 3-ACT Math Task. Students ask and answer questions about the number of marbles.) 2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. (Example: In unit 1 Science, students work to create a solution to the house issue based on what they have learned and discovered about different types of materials.)	8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks. (Example: Students will learn foundational strategies for fluently adding and subtracting within 10 will be applied throughout the rest of 2nd grade and will carry on to the upper grades.) 8.2.2.ITH.3: Identify how technology impacts or improves life (Example: Students learn to use the various online platforms such as google classroom, Pearson Realize, digital math tools, digital math games.)

CLKS:

9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community (Ex: When establishing routines, students will learn about working together, cleaning up, partnerships etc. This will continue throughout the school year.)

9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. (Ex: During the beginning of the year, students will learn how we can keep our materials safe and how to respect our classroom environment and math tools. This will continue throughout the school year.)

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). (Example: Students use tools to solve for all the combinations-of-10 addition fact.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Counting on is a strategy that can be used to find sums. The order of addends does not change the sum.
- Basic addition facts that are near doubles can be found using a related doubles fact.
- Some addition facts can be found by changing to an equivalent fact with 10.
- Patterns in a 0-10 addition facts table are useful for adding numbers and for developing mental math strategies and number sense.
- A number line is a tool you can use to help you count on or count back to subtract.
- Addition and subtraction have an inverse relationship. The inverse relation between addition and subtraction can be used to find subtraction facts; every subtraction fact has a related addition fact.
- Some subtraction facts can be simplified by making use of the numbers' relationships to 10.
- The addends determine efficient strategies, such as making 10 or using doubles facts, for finding addition facts. Think of a related addition fact" is an efficient strategy for finding a subtraction fact.

Essential Questions:
- What are strategies for finding addition and subtraction facts?
- If you add two numbers in the same order, will you get the same sum?
- How can you use a doubles fact to find a near doubles fact?
- Why is making a 10 a good strategy to help you add quickly and accurately?
- How can addition patterns help you find an addition fact that you don't remember?
- What are two ways that you can use a number line to subtract?
- How are addition and subtraction related?
- Why is making a 10 a good strategy to help you subtract quickly and accurately?
- How do you decide which strategy to use to add and subtract quickly and accurately?
- Why is writing an equation useful for solving a word problem?
- What are some ways to describe a good math argument?

STUDENT LEARNING OBJECTIVES	
Key Knowledge	**Process/Skills/Procedures/Application of Key Knowledge**
Students will know: ● equation ● addend ● sum ● doubles ● near doubles ● difference ● bar diagram	*Students will be able to:* ● Use counting on to add numbers and add numbers in any order. ● Use doubles and near doubles to add quickly and accurately. ● Use the strategy of making a ten to add quickly and accurately. ● Use number patterns on an addition facts table to complete addition equations. ● Count on and count back on a number line to subtract. ● Think addition to subtract quickly and accurately. ● Make a 10 to subtract quickly and accurately. ● Add and subtract quickly and accurately using mental math strategies.
ASSESSMENT OF LEARNING	
Summative Assessment (Assessment at the end of the learning period)	**Unit 1 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
Benchmark Assessments (used to establish baseline achievement data and measure progress towards	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment**

grade level standards; given 2-3 X per year)	● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES
Core instructional materials: ● enVision Mathematics Teacher's Edition Grade 2 Volume 1 ● Student Workbook Grade 2 Volume 1 ● Teacher's Resource Masters Grade 2 Volume 1 ● Additional Practice Workbook ● Online access
Supplemental materials: ● Number Talks by Sherry Parrish ● Hands on Standards K-2 ● https://gfletchy.com/3-act-lessons/ ● Additional Drive Resources ● Math Running Records FB
Modifications for Learners
See appendix

Topic/Unit 2 Title	2: Work with Equal Groups	Approximate Pacing	7 days Mid Oct.

STANDARDS

NJSLS Mathematics

2.OA.B2: Fluently add and subtract within 10 using mental math strategies. By the end of Grade 2, know from memory all sums of 2 one-digit numbers.

2.OA.C3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects and counting them by 2s; write an equation to express and even number as a sum of two equal addends.

2.OA.C4: Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

2.OA.A1: Using 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.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
SL.2.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. (Example: 2-1 Solve and Share. Students pick a number and draw cubes to represent that number.	8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. (Example: Students utilize chromebooks to access google classroom, digital math tools, Pearson Realize, digital math games.) 8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. Engineering design is a creative process for meeting human needs

Students discuss if that number can make equal groups and explain why or why not). 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats. (Example: In unit 1 Science, students will choose and research a living thing and its habitat through a variety of media. Students will discuss the living thing and the habitat they researched and compare and contrast.)	or wants that can result in multiple solutions. (Example: Pick a Project! Students create an orchard model using playdough, toothpicks, paper, and pencil.).

CLKS:

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)

(Example: When participating in the Convince Me!, students are listening to each other's explanations and asking questions to understand fully, they need to clearly explain the thinking that occurred during the mental math. In real life, people aren't privy to what is happening in your head and you must develop effective communication skills to explain your thought process.)

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). (Example: In lesson 2-2, students use different ways such as add to and take apart, to tell if a group of objects shows an even or odd number.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Numbers can be classified as even or odd by showing numbers as two equal parts.
- A group of objects (or a number) can also be classified as even or odd by analyzing skip-counting patterns. An even number can be written as a sum of equal addends.
- An array shows equal groups, so you can write equations using repeated addition to find the total number of objects in an array.
- You can make arrays and write equations using repeated addition to help solve problems
- Good math thinkers use math they know to show and solve problems.

Essential Questions:
- How can you show even and odd numbers? How do arrays relate to repeated addition?
- How can you tell if the number of cubes in a tower of cubes is even or odd?

- How can you tell if a group of objects is even or odd?
- What are the two ways you can use addition to find the total number of objects in an array?
- How can you write an equation, using repeated addition, to find the total number of objects in an array?
- When you need to solve a word problem, why do you draw a picture and write an equation?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: - even - odd - array - rows - columns	*Students will be able to:* - Tell if a group of objects is even or odd. - Use different ways to tell if a group of objects shows an even or odd numbers. - Find the total number of objects in a set of rows and columns. - Make arrays with equal rows or equal columns to solve addition problems. - Model problems using equations, drawings, and arrays.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 2 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	- **Anecdotal note-taking** - **Analysis of student work** - **Daily Review** - **Vocabulary Review** - **Math Practices Proficiency Rubric** - **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge,	- **3-Act Math Task Recording Sheet** - **Today's Challenge** - **Convince Me!** - Addition Math Running Record - Subtraction Math Running Record

understanding and proficiency)	
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	**NWEA MAP Assessments (beginning, middle, and end of year)** **Readiness Test** **Progress Monitoring Assessments** **Topics 1-4 Cumulative Benchmark Assessment** **Topics 1-8 Cumulative Benchmark Assessment** **Topics 1-12 Cumulative Benchmark Assessment** **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES
Core instructional materials: - enVision Mathematics Teacher's Edition Grade 2 Volume 1   - Student Workbook Grade 2 Volume 1   - Teacher's Resource Masters Grade 2 Volume 1   - Additional Practice Workbook   - Online access
Supplemental materials: - Number Talks by Sherry Parrish   - Hands on Standards K-2   - https://gfletchy.com/3-act-lessons/   - Additional Drive Resources   - Math Running Records FB
Modifications for Learners
See appendix

Topic/Unit 3 Title	3: Add Within 100 Using Strategies	Approximate Pacing	10 days Mid Oct - Early Nov.

STANDARDS

NJSLS Mathematics

2.NBT.B5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.B9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

Standards for Mathematical Practice
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (Example: In Science unit 3, students look at and observe photos of the school's playground during different days (sunny, rainy). Students record in their journals and participate in discussions regarding the differences between the playground on a sunny day versus a rainy day.) W.2.2. Write informative/explanatory texts in which they introduce a topic, use evidence-based facts and definitions to develop points, and provide a conclusion. (Example: Pick a Project! Students create a map for travel or make an olympic games poster.)	8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks. (Example: In lesson 3-4, students use the compensation strategy, breaking apart addends and combine them in different ways to solve problems.) 8.1.2.AP.4: Break down a task into a sequence of steps. (Example: In unit 3, students learn the break apart strategy to find the sums of numbers. They will continue to use this strategy throughout the school year and in the upper grades.)

CLKS:
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). (Example: 3-ACT Math Task. Students identify how many tiles there are by using different strategies to solve (break apart numbers to add, make arrays to find totals, make a 10 to add, use of manipulatives). 9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. (Example: Digital math tools, google classroom, Pearson Realize).

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Patterns on a hundred chart can be used to add numbers and to develop mental math strategies and number sense
- Two-digit numbers can be broken apart using tens and ones and added in different ways. You can represent how you break apart and add numbers with hops or jumps on an open number line.
- Two-digit numbers can be broken apart using tens and ones and added in different ways.
- When adding two-digit numbers, you can add an amount to one addend and subtract the same amount from another addend to make addition easier.

Essential Questions:
- What are strategies for adding numbers to 100?
- How can you use patterns on a hundred chart to help you add numbers mentally?
- How can you use an open number line to help you add two 2-digit numbers?
- How can you break apart the second addend to find the sum of two 2-digit numbers?
- How can you use the compensation strategy to find the sum of two 2-digit numbers?
- What strategies can you use to add two 2-digit numbers?
- What are some things you can do to help you keep track of steps in a problem?
- What are some ways to describe a good math argument?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Skills/Procedures/Application of Key Knowledge
Students will know: ● tens ● ones ● open number line ● break apart	*Students will be able to:* ● Add within 100 using place-value strategies and a hundred chart. ● Use an open number line to add tens and ones within 100. ● Break apart numbers into tens and ones to find their sum.

	● compensation	● Break apart addends and combine them in different ways to make numbers that are easy to add mentally.
ASSESSMENT OF LEARNING		
Summative Assessment (Assessment at the end of the learning period)	**Unit 3 Topic Assessment**	
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**	
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record	
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**	
RESOURCES		

Core instructional materials:
- enVision Mathematics Teacher's Edition Grade 2 Volume 1
- Student Workbook Grade 2 Volume 1
- Teacher's Resource Masters Grade 2 Volume 1
- Additional Practice Workbook
- Online access

Supplemental materials:
- Number Talks by Sherry Parrish
- Hands on Standards K-2
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- Additional Drive Resources
- Math Running Records FB

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See appendix

Topic/Unit 4 Title	4: Fluently Add Within 100	Approximate Pacing	11 days Mid Nov. - End Nov.

STANDARDS
NJSLS Mathematics

2.NBT.B5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.B6: Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.B9: Explain why addition and subtraction strategies work, using place value and the properties of operations.
2.OA.A1: Using 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.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (Example: In Science unit 3, students learn about erosion and the effects. Students build a physical model with sand, to test changes to the shape of the land caused by water.) W2.5 With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. (Example: In lesson 4-7, students complete a solve and share problem by using different strategies to solve an addition word problem. The class discusses selected strategies, and children revise their work.)	8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. (Example: Students choose math tools from the digital technology center to help solve problems.) 8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. (Example: Pick a Project. Students work in groups to build a coral model using pencil, paper, and playdough.)

CLKS:

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). (Example: In lesson 4-7 Convince Me! Students participate in the discussion of what strategy they could use to solve 36 + ? = 53 and why it is a good strategy.)

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). (Example: As a contributing member of society you will need the skills of being able to solve 1 and 2-step problems. In lesson 4-8, students use drawings, models, and equations to solve one- and two-step problems.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Strategies for adding two-digit numbers involve breaking numbers apart using place value and joining tens and ones in either order.
- Strategies for adding two-digit numbers involve breaking numbers apart using place value and joining tens and ones in either order. Sometimes 10 ones can be composed to make 1 ten.
- One way to add two-digit numbers is to break the numbers into tens and ones, add the tens and add the ones in either order, and then add these partial sums to find the total.
- One way to add two-digit numbers is to break just one addend into tens and ones, add the ten to the other addend, and then add the ones.
- Strategies for adding two 2-digit numbers can be extended to adding more than two 2-digit numbers. Numbers can be added in any order.
- There are several addition strategies that can be used to add more than two numbers. Numbers can be added in any order.
- Some problems can be solved in one step. Other problems can be solved in two steps-first, by solving a sub-problem or by answering a hidden question, and then by using that answer to solve the original problem.
- Good math thinkers use math they know to show and solve problems!

Essential Questions:
- What are strategies for adding numbers to 100?
- How can you use regrouping to add two 2-digit numbers?
- How can you use place-value drawings and breaking addends into tens and ones to solve addition problems?
- How can you use partial sums to add two-digit numbers?
- How can you use mental math and partial sums to add two-digit numbers?
- How can you break apart one addend and add mentally to find the sum of two 2-digit numbers?
- How can you add more than two 2-digit numbers?
- How can you add two or more 2-digit numbers in different ways?
- What are some things you can do to help you solve one- and two-step word problems?

● What are some ways to show (model) and solve word problems?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: ● regroup ● partial sum ● mental math ● compatible	*Students will be able to:* ● Use modals to add 2-digit numbers and then explain ● Add 2-digit numbers using models. ● Add using place value and partial sums. ● Add using mental math, place value, and partial sums ● Add using place-value strategies and mental math. ● Add three or four 2-digit numbers. ● Practice using strategies to add more than two numbers. ● Use drawings, models, and equations to solve one- and two-step problems.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	● **Unit 4 Topic Assessment** ● **Topics 1-4 Cumulative Benchmark Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
Benchmark Assessments (used to establish baseline achievement data and measure progress towards	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment**

grade level standards; given 2-3 X per year)	● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

Core instructional materials:
    ● enVision Mathematics Teacher's Edition Grade 2 Volume 1
    ● Student Workbook Grade 2 Volume 1
    ● Teacher's Resource Masters Grade 2 Volume 1
    ● Additional Practice Workbook
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Supplemental materials:
    ● Number Talks by Sherry Parrish
    ● Hands on Standards K-2
    ● https://gfletchy.com/3-act-lessons/
    ● Additional Drive Resources
    ● Math Running Records FB

Modifications for Learners
See appendix

Topic/Unit 5 Title	5: Subtract Within 100 Using Strategies	Approximate Pacing	11 days December

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<tr><td colspan="4" align="center">**NJSLS Mathematics**</td></tr>
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2.NBT.B5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B6: Add up to four two-digit numbers using strategies based on place value and properties of operations.

2.NBT.B9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

2.OA.A1: Using 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.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. (Example: In Science unit 2, students will note the connections between the change in properties - water to ice to water.) SL.2.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. (Example: In lesson 5-8, students use math to explain why they are right. They discuss math with others and critique the thinking of others by asking and answering questions regarding what is known about addition and subtraction.)	8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. (Example: Students will work together to brainstorm on how to solve the 3-ACT math task in act 2, develop a model.) 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. (Example: Pick a Project! Students use a computer to research the temperature for the week to create a weather report to

	show temperature changes or use a computer to research the number of moons planets have.)

CLKS:

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). (Example: 3-ACT Math Task. Students use different strategies such as break apart numbers to subtract, subtract using compensation, or subtract using an open number line to solve for the number of socks dropped.)

9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). (Example: In lesson 5-6, students use an appropriate subtraction strategy to show their work and explain why they chose that strategy.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Patterns on a hundred chart can be used to subtract numbers and to develop mental math strategies and number sense.
- Two-digit numbers can be broken apart using tens and ones to subtract in different ways. You can represent how you break apart and subtract numbers with hops or jumps on an open number line.
- Two-digit numbers can be broken apart using tens and ones to subtract in different ways. You can represent how you break apart and subtract numbers with hops or jumps on an open number line. You can count back or add up to subtract.
- One-digit numbers can be broken apart to make it easier to subtract them mentally.
- When subtracting 2-digit number, you can add the same amount to both numbers in the problem, or you can subtract the same amount from both numbers in the problem, to make subtraction easier.
- There are different ways to subtract 2-digit numbers. Certain strategies may be better to use for a problem than others.
- You can use bar diagrams, equations, and the relationship between addition and subtraction to help you solve one- and two-step word problems, you need to find the answer to the first step, and then use it to solve the second step.
- Good math thinkers use math to explain why they are right. They can talk about the math that others do, too.

Essential Questions:
- What are strategies for subtracting numbers to 100?
- How can patterns on a hundred chart help you subtract numbers mentally?
- How can you use an open number line to subtract tens and ones?
- How can you use an open number line to add up to subtract?
- Why is it a good idea to break apart the number you are subtracting into two numbers?
- What is compensation and how can you use it to help you subtract?
- What strategies can you use to subtract two 2-digit numbers?

- How can you go about solving one- and two-step word problems?
- What are some things you can do to critique the thinking of others?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: ● tens ● ones ● difference ● open number line ● agree ● do not agree	*Students will be able to:* ● Use a hundred chart to subtract tens and ones ● Use an open number line to subtract tens and ones. ● Add up to subtract using an open number line. ● Break apart 1-digit numbers to make it easier to subtract mentally. ● Make numbers that are easier to subtract, and use mental math to find the difference. ● Choose and use any strategy to subtract 2-digit numbers. ● Solve one- and two-step problems using addition or subtraction. ● Critique the thinking of others by using what is known about addition and subtraction.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 5 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record

Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● NWEA MAP Assessments (beginning, middle, and end of year) ● Readiness Test ● Progress Monitoring Assessments ● Topics 1-4 Cumulative Benchmark Assessment ● Topics 1-8 Cumulative Benchmark Assessment ● Topics 1-12 Cumulative Benchmark Assessment ● Topics 1-15 Cumulative Benchmark Assessment

RESOURCES

Core instructional materials:
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- Teacher's Resource Masters Grade 2 Volume 1
- Additional Practice Workbook
- Online access

Supplemental materials:
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- Math Running Records FB

Modifications for Learners

See appendix

Topic/Unit 6 Title	6: Fluently Subtract Within 100	Approximate Pacing	9 days Early Jan. - Mid Jan.

STANDARDS

NJSLS Mathematics

2.NBT.B5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

2.OA.A1: Using 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.

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.

2 Reason abstractly and quantitatively.

3 Construct viable arguments and critique the reasoning of others.

4 Model with mathematics.

5 Use appropriate tools strategically.

6 Attend to precision.

7 Look for and make use of structure.

8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid. 6.1.2.Geo.SV.1: Use maps to identify physical features (e.g., continents, oceans, rivers, lakes, mountains). (Example: STEM theme: Finding Water and Finding Differences. Students use globes, maps, books, and other sources to find out where water, snow and ice can be found. They discuss the different bodies of water and locations.)	8.1.2.NI.2: Describe how the Internet enables individuals to connect with others worldwide. (Example: Pick a Project! Students use the internet to research schools around the world to compare and contrast class sizes.) 8.1.2.AP.4: Break down a task into a sequence of steps. (Example: In lesson 6-4, students using the strategy partial differences to break apart two-digit numbers to make it easier to subtract mentally.)

CLKS:

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job. (Example: Pick a Project! Cartographers and photogrammetrists use maps, globes, and other sources to create or update maps. Astronomers study the stars.)

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). Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem. (Example: Lesson 5-7 Problem Solving: Reasoning. During a solve and share, students choose a subtraction strategy to use to solve problems. Students explain why they chose that strategy.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- When you use place value-materials to subtract a one-digit whole number from a two-digit whole number, sometimes you need to decompose 1 ten as 10 ones.
- When you use place value materials to subtract a two-digit whole number from a two-digit whole number, sometimes you need to decompose 1 ten as 10 ones. When subtracting, you can start with the tens or the ones.
- When subtracting two-digit numbers, you can subtract the tens and then subtract the ones by making a 10.
- Two-digit numbers can be broken apart to make it easier to subtract them mentally.
- Subtraction problems involving two-digit numbers can be solved using different subtraction strategies.
- Two-step word problems can be solved by first identifying and solving a hidden question. The answer to the hidden question is then used to answer the question given in the problem.
- A bar diagram can be used to identify the relationship between quantities in a word problem and the operation(s) needed to solve it.

Essential Questions:
- What are strategies for subtracting numbers to 100?
- Why do you sometimes need to regroup when you subtract?
- How is subtracting a 2-digit number from a 2-digit number like subtracting a 1-digit number from a 2-digit number?
- How can you use partial differences to subtract two-digit numbers?
- How could you break apart a two-digit number that you are subtracting in order to make it easier to subtract?
- What are some strategies you could use to solve a subtraction problem?
- Why is it helpful to complete a bar diagram and write an equation to solve word problems?
- How can you use a bar diagram and an equation to show how the numbers in a word problem are related?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: - partial differences - place-value blocks (tens and ones)	*Students will be able to:* - Use place value and models to subtract one-digit numbers. - Use place value and models to subtract two-digit numbers.

● bar diagrams ● equations	● Subtract using place value and partial differences. ● Break apart two-digit numbers to make it easier to subtract. ● Subtract two-digit numbers using a variety of subtraction strategies. ● Use models and quotations to solve word problems. ● Reason about word problems and use bar diagrams and equations to solve them.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 6 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

Core instructional materials:
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● Additional Practice Workbook ● Online access
Supplemental materials: ● Number Talks by Sherry Parrish ● Hands on Standards K-2 ● https://gfletchy.com/3-act-lessons/ ● Additional Drive Resources ● Math Running Records FB
Modifications for Learners
See appendix

Topic Unit 7 Title	7: More Solving Problems Involving Addition and Subtraction	Approximate Pacing	11 days Mid. Jan - End Jan.

STANDARDS

NJSLS Mathematics

2.NBT.B: Use place value understanding and properties of operations to add and subtract.

2.NBT.B5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.OA.A1: Using 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.

2.OA.B2: Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area. (Example: In unit 7 when teaching word problems, students need to be taught to think about the text and determine the meaning of them to figure out the operation. It is problematic to teach keywords for number stories or word problems, for example, to say the keyword *more* means add would be wrong because this is not always true. Instead of teaching keywords, children should think about the relationships between the given numbers before choosing an operation.)	8.1.2.DA.3: Identify and describe patterns in data visualizations (Example: Lesson 7-2 Problem Solving Higher Order Thinking. Students use a table to show the different possibilities of how many red and green tacks there are.) 8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. (Example: 3-Act Math Task The Water Jug. Students work together to develop a

2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. (Example: In Science unit 3, students come up with a solution to a flooding issue on the playground. They work to design it, building models and test designs.)	model to represent how much water is left after pouring 128 oz of water into 6 glasses.)

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). (Example: During Today's Challenge, students analyze the data regarding the number of vehicles in the store parking lot to ask and answer questions.)

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) Brainstorming can create new, innovative ideas. (Example: Students will participate in class discussions regarding different strategies to use to solve a word problem. Actively listening and participating is a skill needed for all jobs and careers.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- A bar diagram can be used to show the relationship between quantities in a real-world problem, and an equation can be written to represent that relationship.
- A bar diagram can be used to show the relationship between quantities in a real-world problem, and an equation can be written to represent that relationship. Strategies for adding and subtracting whole numbers can be used to find unknowns.
- Sometimes a problem has an unstated, or hidden, question that you need to answer before you can find the final answer.
- Sometimes the answer to one problem is needed to find the answer to another problem.
- An equation can have different numerical expressions on each side of the equal sign, but each has the same value.
- Reasoning can be used to identify relationships between quantities in real-world problems.

Essential Questions:
- How can you solve word problems that use adding and subtracting?
- How can you write an equation to show and solve a word problem?
- What are some things you can do to help you solve word problems?
- How can you use a bar diagram to help you solve a word problem?
- How do you decide if you need to solve a problem in two steps?
- How can you figure out if there is a hidden question that you need to answer first in order to solve a word problem?
- How can you find the missing number in an equation that relates two numbers on each side?
- How can you find the missing number in an equation that relates up to three numbers on each side?
- How can you use an equation to write a number story?

STUDENT LEARNING OBJECTIVES	
Key Knowledge	**Process/Skills/Procedures/Application of Key Knowledge**
Students will know: ● equation ● bar diagram ● word problem ● number story ● missing number	*Students will be able to:* ● Model problems using equations with unknowns in any position. ● Use drawings and equations to make sense of the words in problems. ● Use drawings and equations to make sense of the words in problems. ● Model and solve two-step problems using equations. ● Use different ways to solve two-step problems ● Find unknown numbers in equations that relate four whole numbers.

ASSESSMENT OF LEARNING	
Summative Assessment (Assessment at the end of the learning period)	**Unit 7 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
Benchmark Assessments (used to establish baseline achievement data and measure progress towards	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment**

grade level standards; given 2-3 X per year)	● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

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Supplemental materials:
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Modifications for Learners

See appendix

Topic/Unit 8 Title	8: Work with Time and Money	Approximate Pacing	10 days Early Feb. - Mid Feb.

STANDARDS

NJSLS Mathematics

2.MD.C8: Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, and using $ and ¢ symbols appropriately.
Example: If you have 2 dimes and 3 pennies, how many cents do you have?
2.NBT.A2: Count within 1000; skip-count by 5s, 10s, and 100s.
2.MD.C7: Tell and write time using analog and digital clocks to the nearest five minutes; using a.m. and p.m.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning

Interdisciplinary Connections:	CS & DT:
2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. (Example: STEM Theme: Money Matters. Students discuss the different types of coins and bills and the different materials used to make them.) W2.5 With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. (Example: In lesson 8.3, students complete a problem solving task by showing different ways the clerk can give change back.)	8.2.2.EC.1: Identify and compare technology used in different schools, communities, regions, and parts of the world. (Example: Students compare and contrast the different types of clocks .) 8.1.2.DA.3: Identify and describe patterns in data visualizations. Data can be used to make predictions about the world. (Example: Pick a Project! Students discuss and learn that people use trains all over the world for different reasons. They create a train schedule with departure and arrival times.)

CLKS:

9.1.2.PB.2: Explain why an individual would choose to save money. Saving money is a habit that can be developed.
9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business

(Example: Pick a Project: Set Up a Store! Students set up a small store with items and make price tags for each item. Students use play money to purchase items.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Each kind of coin has a specific value unrelated to its physical size.
- Money is measurable, and the value of coins can be quantified using cent amounts.
- Money is measurable and can be quantified using collar and cent amounts. Each kind of bill has a specific value. You can count to find the total value of a group of dollar bills.
- Each kind of bill has a specific value, and the value of the bills can be used to solve problems about money. Word problems scout money can often be solved by adding and subtracting.
- Good math thinkers know how to think about words and numbers to solve problems.
- Time can be told and written to the nearest 5 minutes. Time can be expressed using different units that are related to each other.
- Time can be described before and after the hour in different ways.
- Certain time periods can be described using the abbreviations a.m. and p.m.

Essential Questions:
- How can you solve problems about counting money or telling time to the nearest 5 minutes?
- How can you find the total value of a group of coins?
- What are some strategies you can use to help you solve word problems about money?
- How can you find the total value of a group of dollar bills?
- What are some strategies you can use to help you solve word problems about money?
- How can you find all the different ways to make a total amount of money?
- How can you use clocks to tell time?
- What are some different ways to say the time of day?
- When do you use a.m. and when do you use p.m. to describe the time of day?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: ● dime ● nickel ● penny ● quarter ● half-dollar	*Students will be able to:* ● Solve problems with coins. ● Solve problems with dollar bills and coins that model 100 cents. ● Solve more problems with dollar bills.

- cents - dollar - dollar sign - dollar bill - tally marks - quarter past - half past - quarter to - a.m. - p.m.	- Reason about values of coins, and find different ways to make the same total value. - Tell and write time to the nearest five minutes. - Say the time in different ways. - Tell time and use reasoning to state if the event is happening in the a.m. or p.m.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 8 Topic Assessment** **Topics 1-8 Cumulative Benchmark Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	**Anecdotal note-taking** **Analysis of student work** **Daily Review** **Vocabulary Review** **Math Practices Proficiency Rubric** **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	**3-Act Math Task Recording Sheet** **Today's Challenge** **Convince Me!**
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	**NWEA MAP Assessments (beginning, middle, and end of year)** **Readiness Test** **Progress Monitoring Assessments** **Topics 1-4 Cumulative Benchmark Assessment** **Topics 1-8 Cumulative Benchmark Assessment** **Topics 1-12 Cumulative Benchmark Assessment** **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

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Modifications for Learners
See appendix

Topic/Unit 9 Title	9: Numbers to 1,000	Approximate Pacing	13 days Mid Feb. - Early March

STANDARDS
NJSLS Mathematics

2.NBT.A1.a, b: 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. a.100 can be thought of as a bundle of ten tens- called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900, refer to one, two, three, four, five, six, seven, eight or nine hundreds (and 0 tens and 0 ones).

2.NBT.A2 Count within 1000; skip count by 5s, 10s, and 100s.

2.NBT.A3: Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

2. NBT.A4: Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons

2.NBT.B8: Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.

2 Reason abstractly and quantitatively.

3 Construct viable arguments and critique the reasoning of others.

4 Model with mathematics.

5 Use appropriate tools strategically.

6 Attend to precision.

7 Look for and make use of structure.

8 Look for and express regularity in repeated reasoning

Interdisciplinary Connections:	CS & DT:
W2.5 With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. (Example: Children make sense of a 3-digit number represented by base-10 blocks by making trades or counting. The class analyzes explanations and drawings, and children revise their work. Lesson 9.2) 2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. (Example: STEM Theme: Breaking Apart	8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks. (Example: In Lesson 9-6, students learn and use place-value patterns to find missing numbers. This will be applied throughout the rest of 2nd grade and will carry on to the upper grades). 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. (Example: Pick a Project. Students choose a

and Putting Together. Students use unifix cubes to build a model. They discuss how many cubes they used to build their model.)	location and design a waterfall guide for that specific location. Guide includes the height of the waterfall using different measurements.)

CLKS:

9.1.2.PB.2: Explain why an individual would choose to save money (Example: 3- ACT math Task: Students discuss how they can save money they earn by thinking about good places to put their money or ways to sort their money.)

9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). (Example: Students pick a place-value strategy that they can use to compare numbers. They share why they chose that strategy and how it helped them.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Numbers can be used to tell how many. The number system is based on groups of ten. Whenever there are 10 in one place value, you move to the next greater place value.
- The number system is based on groups of then. Whenever there are 10 in one place value, you move to the next greater place value. Place value blocks and drawings can be used to model and write three-digit numbers.
- The position of a digit in a number tells its value. It takes 10 of a number in one place value to make a number in the next greater place value.
- There are three common ways to write numbers-standard form, word form, and expanded form. Each way involves using place value to tell the value of each digit.
- Numbers can be named in many ways. Recalling and using facts about equal amounts (such as 100 is equal to 10 tens, and 10 is equal to 10 ones) can help you name numbers in different ways.
- Place-value patterns can help you mentally count by 1s and 10s from a given number.
- Place-value patterns and number lines can be used to help you skip count by 5s, 10s, and 100s.
- Place-value strategies can be used to compare numbers. The symbols>, =, < can be used to show how the numbers are related.
- Number lines go on forever in both directions. For every number, there is another number that is greater than it, and another number that is less than it. A number line can be used to help you find the numbers that are greater than or less than a given number.

Essential Questions:
- How can you count, read, and show numbers to 1,000?
- How can you find the value of a group of hundreds?
- How can you show and write 3-digit numbers?
- How does the position of a digit help you name its value?
- How can you write a 3-digit number in three different forms?

- How can you use hundred, tens, and ones to make a number in different ways?
- How can you use place-value patterns to help you count by 1s and 10s from a given number, such as 346?
- How can you use skip counting to find missing numbers on a number line?
- How can you compare two numbers?
- How can you use a number line to help you find a number that is greater or less than a given number?
- How can you find the number that comes next in a number pattern?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: - hundred - thousand - digit place-value chart - standard form - expanded form - word form - compare - greater than (>) - less than (<) - equal to (=) - decrease - increase	*Students will be able to:* - Understand place value and count by hundreds to 1,000. - Use place-value blocks and drawings to model and write 3-digit numbers. - Tell the value of a digit by where it is placed in a number. - Read and write 3-digit numbers in expanded form, standard form, and word form. - Make and name a number in different ways to show the same value. - Use place-value patterns to mentally count by 1s and 10s from a given number. - Skip count by 5s, 10s, and 100s using a number line. - Compare numbers using place value. - Compare and write a 3-digit number that is greater than or less than another 3-digit number. - Look for patterns to help when solving problems.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	Unit 9 Topic Assessment
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	- **Anecdotal note-taking** - **Analysis of student work** - **Daily Review** - **Vocabulary Review** - **Math Practices Proficiency Rubric**

	● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!**
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

Core instructional materials:
- enVision Mathematics Teacher's Edition Grade 2 Volume 2
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- Teacher's Resource Masters Grade 2 Volume 2
- Additional Practice Workbook
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Supplemental materials:
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Modifications for Learners

See appendix

Topic/Unit 10 Title	10: Add Within 1,000 Using Models and Strategies	Approximate Pacing	9 days Mid March

STANDARDS
NJSLS Mathematics

2.NBT.A2: Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.B7: Add or subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

2.NBT.B8: Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

2.NBT.B9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

2.MD.C8: Solve word problems involving dollar bills, quarters, dimes, nickels,and pennies, using $ and ¢ symbols appropriately

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.

2 Reason abstractly and quantitatively.

3 Construct viable arguments and critique the reasoning of others.

4 Model with mathematics.

5 Use appropriate tools strategically.

6 Attend to precision.

7 Look for and make use of structure.

8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. (Example: In Science unit 2, students work to create a solution to the house issue based on what they have learned and discovered about different types of materials. They think about the best materials for	8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks. (Example: In lesson 10-3, students will learn foundational strategies for place value using base-10 blocks to create mathematical representations.) 8.2.2.ED.3 Select and use appropriate tools and materials to build a product using the design process. *(*Example: STEM Theme: Science: Building Up to 1,000. Students use drinking straws and

different areas to combate weather as well as making choices about sturdy materials.)	pieces of tape to build a tall building. Students discuss how many straws and pieces of tape they used to construct their building).

| **CLKS:** ||

9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). (Example: In lesson 10-6, students choose an addition strategy to use to help solve the problem. Students discuss why they chose that strategy and how it helped them solve the problem.)

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job. (Example: Pick a Project! Students pick a project to complete individually, with a partner, or with a group based on interest in the job and what that job does.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Place-value patterns and basic facts can be used to help you mentally add 10 and 100 to any given 3-digit number.
- Three-digit numbers can be broken apart using hundreds, tens, and ones and added in different ways. You can represent how you break apart and add numbers with hops or jumps on an open number line.
- When adding three-digit numbers, hundreds are added to hundreds, tens to tens, and ones to ones. You can add starting in any place value. Sometimes you can compose 10 ones for 1 ten or 10 tens for 1 hundred.
- When adding three-digit numbers, hundreds are added to hundreds, tens to tens, and ones to ones. You can add starting in any place value. These partial sums can be recorded and added to get the final sum.
- When adding three-digit number, different strategies can be used to find the correct sum. Place value and properties of operations can be used to explain why most strategies work.
- Good math thinkers look for things that repeat in a problem. They use what they learn from one problem to help them solve other problems.

Essential Questions:
- What are strategies for adding numbers to 1,000?
- How can you use mental math to add 10 or (100) to a 3 digit number?
- How can you use an open number line to add 3-digit numbers?
- How can you use models to add 3-digit numbers?
- How can you use partial sums to add 3-digit numbers?
- How can you use place value and partial sums to add 3-digit numbers?
- How can you explain why addition strategies work?
- How can repeated reasoning help you add 3-digit numbers?

STUDENT LEARNING OBJECTIVES	
Key Knowledge	**Process/Skills/Procedures/Application of Key Knowledge**
Students will know: ● place value - hundreds, tens, ones ● 2-digit/3-digits ● partial sums ● open number line ● patterns	*Students will be able to:* ● Add 10 and 100 mentally using place value ● Use an open number line to add 3-digit numbers ● Add 3-digit numbers using models ● Use models and place value to add 3-digit numbers. ● Add 3-digit numbers using place value and partial sums. ● Use different addition strategies and explain why they work.Identify calculations or steps that repeat when solving problems.
ASSESSMENT OF LEARNING	
Summative Assessment (Assessment at the end of the learning period)	**Unit 10 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

Core instructional materials:
  ● enVision Mathematics Teacher's Edition Grade 2 Volume 2
  ● Student Workbook Grade 2 Volume 2
  ● Teacher's Resource Masters Grade 2 Volume 2
  ● Additional Practice Workbook
  ● Online access

Supplemental materials:
  ● Number Talks by Sherry Parrish
  ● Hands on Standards K-2
  ● https://gfletchy.com/3-act-lessons/
  ● Additional Drive Resources
  ● Math Running Records FB

Modifications for Learners
See appendix

Topic/Unit 11 Title	11: Subtract Within 1,000 Using Models and Strategies	Approximate Pacing	9 days End March - Early April

STANDARDS
NJSLS Mathematics

2.NBT.A2: Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.B7: Add or subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

2.NBT.B8: Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

2.NBT.B9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

2.MD.C8: Solve word problems involving dollar bills, quarters, dimes, nickels,and pennies, using $ and ¢ symbols appropriately

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.

2 Reason abstractly and quantitatively.

3 Construct viable arguments and critique the reasoning of others.

4 Model with mathematics.

5 Use appropriate tools strategically.

6 Attend to precision.

7 Look for and make use of structure.

8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
W2.5 With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. (Example: 3 ACT Math Task: Students make models to solve a problem that involves using different strategies to add and subtract.) 2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. (Example: During Science Unit 4 and STEM Theme: Making Models: students discuss how bees move pollen from one flower to another.)	8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. (3 ACT Math Task: Students work in pairs or groups to solve a math task involving subtraction.) 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and

	preferences. (Example: Students utilize digital math tools to help them solve subtraction problems.)

CLKS:

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). (Example: In lesson 11-5, students use different subtraction strategies and discuss why they chose that strategy and how it helped them solve the problem.)
9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). (Example: Pick a Project! Students share their completed projects to either a partner, small group, or whole class).

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Place-value patterns and basic facts can be used to help you mentally subtract 10 or 100 from any given three-digit number.
- Three-digit numbers can be broken apart using hundreds, tens and ones to subtract in different ways. You can represent how you break apart and subtract numbers with hops or jumps on an open number line. You can count back or add up to subtract.
- When subtracting 3-digit numbers, hundreds are subtracted from hundreds, tens from tens, and ones from ones. You can subtract starting in any place value. Sometimes you can decompose 1 hundreds into 10 tens or 1 ten into 10 ones.
- When subtracting 3-digit numbers, hundreds are subtracted from hundreds, tens from tens, and ones from ones. You can subtract starting in any place value. Subtracting to find partial differences can be recorded to get the final difference.
- When subtracting 3-digit numbers, different strategies can be used to find the difference. Sometimes you can decompose 1 hundred into 10 tens or 1 ten into 10 ones. Place value and properties of operations can be used to explain why most strategies work.
- Good math thinkers know what the problem is about. They have a plan to solve it. They keep trying if they get stuck.

Essential Questions:
- What are strategies for subtracting numbers to 1,000?
- How can you use mental math to subtract 10 (or 100) from a 3-digit number?
- How can you use an open number line to solve a subtraction problem?
- How can models help you regroup to subtract 3-digit numbers?
- How can you use models and place value to subtract 3-digit numbers?
- How can you explain why subtraction strategies work?
- How can you make sense of a word problem that has a hidden question, and what steps can you use to solve it?

STUDENT LEARNING OBJECTIVES	
Key Knowledge	**Process/Skills/Procedures/Application of Key Knowledge**

Students will know:	Students will be able to:
● place value - hundreds, tens, ones ● 2-digit/3-digits ● partial sums ● open number line	● Subtract 10 or 100 mentally using place-value strategies ● Use an open number line to subtract 3-digit numbers. ● Use models to subtract 3-digit numbers ● Use models and place value to subtract ● Explain why subtraction strategies work using models, place value, and mental math. ● Solve problems that take more than one step.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 11 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

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Supplemental materials: ● Number Talks by Sherry Parrish ● Hands on Standards K-2 ● https://gfletchy.com/3-act-lessons/ ● Additional Drive Resources ● Math Running Records FB
Modifications for Learners
See appendix

Topic/Unit 12 Title	12: Measuring Length	Approximate Pacing	11 days Mid April - End April

STANDARDS

NJSLS Mathematics

2.MD.A1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A2: Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

2.MD.A3: Estimate lengths using units of inches, feet, centimeters, and meters.

2.MD.A4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

2.MD.B5: 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.

Standards for Mathematical Practice

1 Make sense of problems and persevere in solving them.

2 Reason abstractly and quantitatively.

3 Construct viable arguments and critique the reasoning of others.

4 Model with mathematics.

5 Use appropriate tools strategically.

6 Attend to precision.

7 Look for and make use of structure.

8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
SL.2.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. (Example: 12-9 Problem Solving: Precision. Students choose a tool to measure the snake. Students discuss the tool they used, why they chose that tool, and compare the lengths from their classmates.)	8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. (Example: Pick a Project! Students draw and measure different lengths of snakes. Using https://nces.ed.gov/nceskids/createagraph/ , students input data and create a digital graph to show the different lengths of the snakes created.

W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1),(K-2-ETS1-3), (2-LS2-1) (Example: Students are researching, watching digital media, reading articles to gather information about bees and how they move pollen.)	

CLKS:

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) Brainstorming can create new, innovative ideas. (Example: Lesson 12-9 Problem Solving: Precision. Students use different objects to measure the length of items. Students discuss the appropriate tool to use to measure that item.)

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job. (Example: Learning about measurement can be used in many different careers, such as carpentry, pharmaceuticals, interior design, etc.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- The length of a known object can be used to estimate the length of another object to the nearest inch, foot, or yard.
- Length and height are measurable in inches, feet, yards and centimeters..
- When measuring length, the longer the chosen unit, the fewer units needed; the shorter the unit, the more units needed.
- The lengths of two objects can be compared by subtracting to find the difference.
- Good math thinkers are careful about what they write and say, so their ideas about math are clear.

Essential Questions:
- What are ways to measure length?
- How can you use the lengths of objects you know to estimate the lengths of other objects?
- How can you use a ruler to measure the length or height of an object?
- How can you measure the length or height of an object in inches, feel or yards?
- Why do you need more or fewer of some units to measure the length of an object in inches, feet, or yards?
- How can you use a centimeter ruler to measure length or height to the nearest centimeter?
- How can you measure the length or height of an object in meters or centimeters?
- Why do you need more or fewer of some units to measure the same object in meters or centimeters?
- How can you find how much longer one length is than another?
- How can you tell if your work is precise when measuring length?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: ● estimate ● inch (in.) ● foot (ft) ● yard (yd) ● height ● nearest inch ● centimeter (cm) ● nearest centimeter ● meter (m) ● ruler ● measuring tape ● meter stick ● yard stick	*Students will be able to:* ● Estimate the length of an object by relating the length of an object to a known measurement. ● Estimate measures and use a ruler to measure length and height to the nearest inch. ● Estimate measures and use tools to measure the length and height of objects to the nearest inch, foot, and yard. ● Estimate and measure the length and height of objects in inches, feet and yards. ● Estimate measures and use a ruler to measure length and height to the nearest centimeter. ● Estimate measures and use a ruler, meter stick, or tape measure to measure length and height to the nearest centimeter or meter. ● Measure the length and height of objects using different metric units. ● Tell how much longer one object is than another. ● Choose tools, units and methods that help to be precise when measuring.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	● **Unit 12 Topic Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!**

demonstrate their knowledge, understanding and proficiency)	
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

Core instructional materials:
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- https://gfletchy.com/3-act-lessons/
- Additional Drive Resources

Modifications for Learners

See appendix

Topic/Unit 13 Title	13: Shapes and Their Attributes	Approximate Pacing	11 days Early May - Mid May

STANDARDS

NJSLS Mathematics

2.G.A1: Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

2.G.A2: Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

2.G.A3: Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc, and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

2.MD.A1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A2: Measure the length of an object twice, using length units of different lengths for the two measurements;
describe how the two measurements relate to the size of the unit chosen.

2.OA.B2: Fluently add and subtract within 10 using mental math strategies. By the end of Grade 2, know from memory all sums of 2 one-digit numbers.

2.OA.C4: 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.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. (Example: STEM Theme: All About Shapes. Students discuss how different tools are different shapes. students	8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. (Example: 3-Act Math Task: Students discuss what they can build with straws. They

notice and discuss how tools are made up of shapes that help them work well for a purpose. Screwdrivers have different kinds of tips.) SL.2.3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. (Example: Lesson 13-7. Students complete a solve and share. students show and discuss equal shares of pizza.)	build and construct their model and determine any changes they need to make.)

CLKS:

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job. (Example: Pick a Project!. Students discuss different jobs that involve building, modeling, and designing.)

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). Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem. (Example: Pick a Project. Students develop a plan to create a tile design, draw a building, or build a landmark).

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Two-dimensional shapes can be classified and sorted based on their attributes.
- Polygons can be described by their numbers of sides and angles.
- Two-dimensional shapes can be defined and differentiated based on attributes. These attributes can be used to draw a specific 2-dimensional shape.
- You can describe a cube by talking about its faces, edges, and vertices. Knowing these attributes helps you draw a cube.
- A rectangle can be partitioned into rows and columns of squares that are all the same size; you can count or add in different ways to find the total number of squares.
- A whole can have equal shares called halves, thirds, and forths. You can show halves, thirds, and fourths of the same whole in different ways.
- You can partition a whole into equal shares in different ways. Equal shares of the same whole do not have to have the same shape.
- Good math thinkers look for things that repeat in a problem. They use what they learn from one problem to help them solve other problems.

Essential Questions:
- How can shapes be described, compared, and broken into parts?
- How can you tell the name of a 2-dimensional shape?

- How can you tell if a shape is a polygon?
- What information should you give to others if you want them to draw a particular polygon?
- How do you use the words, faces, edges, and vertices to describe a cube?
- What are two different ways to find the total number of equal sized squares that cover a rectangle?
- When you show a shape with two/three/four equal shares, what are the shares called?
- Do equal shares have to be the same size and shape? Explain
- How can you use repeated reasoning to divide shapes into equal shares?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: - vertices - quadrilateral - pentagon - hexagon - polygon - angle - right angle - cube - face - edge - equal shares - halves - thirds - fourths - partition - square - polygon	*Students will be able to:* - Recognize shapes by how they look. - Describe plane shapes by how they look. - Draw polygon shapes. - Draw cubes and describe how they look. - Partition rectangles into equal-size squares. - Partition circles and rectangles into halves, thirds, and fourths. - Make equal shares that do not have the same shape. - Use repeated reasoning to show rectangles with rows and columns and create designs with equal shares.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 13 Topic Assessment**

Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!**
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	● **NWEA MAP Assessments (beginning, middle, and end of year)** ● **Readiness Test** ● **Progress Monitoring Assessments** ● **Topics 1-4 Cumulative Benchmark Assessment** ● **Topics 1-8 Cumulative Benchmark Assessment** ● **Topics 1-12 Cumulative Benchmark Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**

RESOURCES

Core instructional materials:
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- Additional Practice Workbook
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- Additional Drive Resources

Modifications for Learners

See appendix

Topic/Unit 14 Title	14: More Addition, Subtraction, and Length	Approximate Pacing	7 days Mid May

STANDARDS
NJSLS Mathematics

2.MD.B5: 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.

2.MD.B6: Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,..., and represent whole-number sums and differences within 100 on a number line diagram.

2.OA.A1: 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 drawing and equations with a symbol for the unknown number to represent the problem.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area. (Example: Students discuss how land and water can change their shape according to the weather circumstances. During Science Unit 3, students are analyzing pictures of the schools' playground before and after a storm.) SL.2.6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (Example:	8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. (Example: Students utilize the technology center to access the digital math tools to help solve for addition and subtraction word problems involving measurement and data.) 8.1.2.AP.4: Break down a task into a sequence of steps. (Example: Lesson 14-1. Students complete a solve and share activity regarding measurement and adding the measurements. Students

Students discuss why picture graphs and bar graphs are useful tools for drawing conclusions about data.)	must measure all sides first. Then students add all of the sides to find the sum.)

CLKS:

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) Brainstorming can create new, innovative ideas. (Example: Lesson 14-5 Problem Solving: Use Appropriate Tools. Students use different strategies to solve addition and subtraction word problems involving measurement by using drawings, equations, base-ten blocks, cubes, counters, number line, etc.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- Measurements in the same unit, such as inches, can be added or subtracted in the same way as adding and subtracting whole numbers. The measurement unit needs to be written with the sum or the difference.
- Pictures and equations can be used to solve word problems involving measurements. Measurements can be added and subtracted in the same way as other whole numbers.
- Pictures and equations can be used to solve word problems involving measurements. Measurements can be added and subtracted in the same way as other whole numbers.
- A sum can be represented as the total length of two line segments on a number line. A subtraction problem can be represented as the difference of two line segments on a number line.
- Good math thinkers know how to pick the right tools to solve math problems.

Essential Questions:
- How can you add and subtract lengths?
- How do you know when to add or subtract when solving problems involving measurements?
- How can you solve addition and subtraction problems involving lengths?
- How can drawing a picture and writing an equation help you solve measurement word problems?
- How can you use a number line to help solve addition and subtraction problems involving length measurements?
- How can you pick the best tool to solve a problem?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: - number line - inches, centimeter, feet, yard, meter - ruler	*Students will be able to:* - Solve problems by adding or subtracting length and measurements. - Add or subtract to solve problems about measurements.

● yardstick ● line segment	● Add and subtract to solve measurement problems by using drawings and equations. ● Add and subtract on a number line. ● Choose the best tool to use to solve problems.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Unit 14 Topic Assessment**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	● **Anecdotal note-taking** ● **Analysis of student work** ● **Daily Review** ● **Vocabulary Review** ● **Math Practices Proficiency Rubric** ● **Topic performance tasks**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	● **3-Act Math Task Recording Sheet** ● **Today's Challenge** ● **Convince Me!** ● Addition Math Running Record ● Subtraction Math Running Record
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RESOURCES

Core instructional materials:
- enVision Mathematics Teacher's Edition Grade 2 Volume 2
- Student Workbook Grade 2 Volume 2
- Teacher's Resource Masters Grade 2 Volume 2
- Additional Practice Workbook
- Online access

Supplemental materials:

- Number Talks by Sherry Parrish
- Hands on Standards K-2
- https://gfletchy.com/3-act-lessons/
- Additional Drive Resources
- Math Running Records FB

Modifications for Learners

See appendix

Topic/Unit 15 Title	15: Graphs and Data	Approximate Pacing	9 days Mid May - End June

STANDARDS

NJSLS Mathematics

2.OA.A1: 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 drawing and equations with a symbol for the unknown number to represent the problem.

2.MD.A1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.D9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

2.MD.D10: 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 present in a bar graph.

Standards for Mathematical Practice
1 Make sense of problems and persevere in solving them.
2 Reason abstractly and quantitatively.
3 Construct viable arguments and critique the reasoning of others.
4 Model with mathematics.
5 Use appropriate tools strategically.
6 Attend to precision.
7 Look for and make use of structure.
8 Look for and express regularity in repeated reasoning.

Interdisciplinary Connections:	CS & DT:
NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. (Students will draw a picture graph and a bar graph to represent a data set and compare problems using info represented.) K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. (Students use line plots, bar graphs, and picture	8.1.2.DA.3: Identify and describe patterns in data visualizations. Data can be used to make predictions about the world. (Example: 3-Act Math Task: Students use line plots and picture graphs to draw conclusions, ask, and answer questions about data.) 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and

graphs to ask and answer questions about data they have collected regarding items in their backpacks.)	preferences. (Example: Use technology to enhance productivity. Students utilize digital math tools and online math games through Pearson Realize.)

CLKS:

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job. (Example: Pick a Project. Students pick a project based on their interests. Jobs include creating and designing, building and modeling, or surveying and collecting data.)

9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Brainstorming can create new, innovative ideas
(Example: Lesson 15-5: Draw Conclusions From Graphs. Students participate in the conversations regarding why the picture graphs and bars graphs are useful tools for drawing conclusions about data. In all careers you must communicate effectively not only what the answer is but how you obtained it.)

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

Students will understand:
- The lengths of objects can be organized in different ways. A line plot can be used as a visual representation of the relative lengths of objects.
- Different types of data can be displayed on a line plot. Line plots are useful for organizing large sets of data.
- Picture graphs use a single symbol to show data. This makes it easy to compare two or more categories.
- Picture graphs and bar graphs are useful tools for comparing data and drawing conclusions.
- Good math thinkers know how to think about words and numbers to solve problems.

Essential Questions:
- How can line plots, bar graphs, and picture graphs be used to show data and answer questions?
- Why is it helpful to use a line plot to display data?
- Why are line plots a useful way to organize large amounts of data?
- Why is making a bar graph from a table of data a good way to compare those data?
- How does a picture graph help you compare data?
- Why are picture graphs and bar graphs useful tools for drawing conclusions about data?
- How can you use graphs to write and solve problems about data?

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge

Students will know:	Students will be able to:
● data ● line plot ● bar graph ● symbol ● picture graph	● Measure the lengths of objects and make a line plot to organize the data. ● Measure the lengths of objects, then make a line plot to organize the data. ● Draw bar graphs and use them to solve problems. ● Draw picture graphs and use them to solve problems. ● Draw conclusions from graphs. ● Reason about data in bar graphs and picture graphs to write and solve problems.

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	● **Unit 15 Topic Assessment** ● **Topics 1-15 Cumulative Benchmark Assessment**
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