NCS COMMUNITY SCHOOL
MATHEMATICS CURRICULUM FRAMEWORK
BOE APPROVED AUGUST 2024

GRADE : 2

PACING

PACING	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
	Topic 1: Fluently Add and Subtract Within 20	**Topic** 2: Work with Equal Groups **Topic** 3: Add Within 100 Using Strategies	**Topic** 4: Fluently Add Within 100 **Topic** 5: Subtract Within 100 Using Strategies	**Topic** 6: Fluently Subtract Within 100	**Topic** 7: More Solving Problems Involving Addition and Subtraction	**Topic** 8: Work with Time and Money **Topic** 9: Numbers to 1,000	**Topic** 10: Add Within 1,000 Using Models and Strategies **Topic** 11: Subtract Within 1,000 Using Models and Strategies	**Topic** 12: Measuring Length	**Topic** 13: Shapes and Their Attributes **Topic** 14: More Addition, Subtraction, and Length	**Topic** 15: Graphs and Data
NJSLA Domain	Operations and Algebraic Thinkin	Operations and Algebraic Thinkin	Number and Operations in Base	Number and Operations in Base	Operations and Algebraic Thinkin	Measurement and Data Number	Number and Operations in Base	Measurement and Data	Geometry Measurement and	Measurement and Data

	g	g Number and Operations in Base Ten	Ten	Ten	g	and Operations in Base Ten	Ten		Data	
District Assessments		End of Year by Oct. 6th BOY Fluency Assessment by Oct 6th	- Formative : - Independent Classwork - Checkpoint quizzes - Summative : - Benchmark assessment Beginning/Mid/End of year - Performance Tasks - End of chapter assessment - Course Benchmark– Big Ideas assessment book - Alternative assessments could include a project or performance task		MOY Fluency and EOY Assessment by Feb. 16th	- Formative : - Independent Classwork - Checkpoint quizzes - Summative : - Benchmark assessment Beginning/Mid/End of year - Performance Tasks - End of chapter assessment - Course Benchmark– Big Ideas assessment book - Alternative assessments could include a project or performance task				EOY Fluency Assessment and EOY Assessment by June 15th
Mathematical Practices	**Construct Arguments** MP.3 (Also, MP.1,	**Model with Math** MP.4 (Also, MP.1, MP.3,	**Model with Math** MP.4 (Also, MP.1, MP.3)	**Reasoning** MP.2 (Also, MP.1, MP.4, MP.5,	**Reasoning** MP.2 (Also, MP.1, MP.3, , MP.4,	**Problem Solving** MP.2 (Also, MP.1, MP.3,	**Repeated Reasoning** MP.8 (Also, MP.1,	**Precision** MP.6 (Also, MP1, MP.3, MP.5)	**Repeated Reasoning** MP.8 (Also, MP.1,	**Reasoning** MP.2 (Also MP.1, MP.3, MP.6,)

	MP.2, MP.4)	MP. 6, MP. 7, MP. 8) **Construct Arguments** MP.3 (Also, MP.1, MP.5)	**Critique Reasoning** MP.3 (Also, MP.1, MP.4, MP.7)	MP.6)	MP. 7) **Reasoning** MP.2 (Also, MP.1, MP.3, MP.4, MP.8)	MP.4, MP. 8) **Look For and Use Structure** MP.7 (Also, MP.1, MP.2, MP.3)	MP.2, MP.4) **Persevere** MP.1 (Also, MP. 2, MP. 3, MP. 8)		MP.2, MP.3, MP.4, MP.7) **Use Appropriate Tools** MP.5 (Also MP.1, MP.3, MP.4, MP.6, MP.8)	
NJSLS Technology	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1
NJSLS Career Readiness Practices	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12
9.1 Personal	9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings. 9.1.4.A.3 Explain how income affects spending and take-home pay.									

Financial Literacy Standards	9.1.4.B.2 Identify age-appropriate financial goals. 9.1.4.G.1 Describe how valuable items might be damaged or lost and ways to protect them. 9.1.4.F.2 Explain the roles of philanthropy, volunteer service, and charitable contributions, and analyze their impact on community development and quality of living.

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

(1) Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.
(3) Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

(4) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two-

and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Grade 2 Overview:

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

Number and Operations in Base Ten

- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

Mathematical Practices:

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.

<u>Social Emotional Learning (SEL) in MATHEMATICS</u>:

Provide students with opportunities to express themselves through discussions that connect to each topic and allow them to explore their feelings about math. Thinking deeply about each topic will help students apply problem solving and critical thinking strategies that will help them reflect on their work and overall performance as well as confidence in mathematics.

- What parts of math make you feel successful?
- What can we learn from our mistakes?
- What self-talk can you use to help you persevere?
- What are positive ways to respond when math starts to feel challenging?
- What can friends say to help us feel better and more successful in math?
- What can we learn from our mistakes in math?
- How can you be a good group member?
- How will you help yourself get “unstuck?”
- Where or when can you use today’s math lesson when you are not in school?
- How do we respond if we don’t agree with someone’s answer or if we know the answer is incorrect?
- How do we feel about solving problems in a different way when asked?
- Did everyone get a fair chance to talk and/or use the manipulatives?

UNIT 1 - Operations and Algebraic Thinking - Chapters 1 - 6		
Unit Summary	**NJSLS Standards**	**Essential Questions**
In this unit students will ● Understand numbers and arrays ● Understand strategies ● Understand addition ● Understand subtraction ● Understand subtraction fluently	NJSLS: ***Operations and Algebraic Thinking*** 2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing,	● How can you use patterns and strategies to find sums and differences for basic facts? ● How do you use repeated addition to count the number of objects in an array? ● What are some different ways to

	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.B.2 With accuracy and efficiency, add and subtract within 20 using mental strategies.2 By end of Grade 2, know from memory all sums of two one-digit numbers. 2.OA.C.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends. 2.OA.C.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. ***Number and Operations in Base Ten*** 2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. 2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and	add 2-digit numbers? ● How can you solve one- and two-step word problems within 100? ● How do you add and subtract 2-digit numbers with and without regrouping?

	subtraction. 2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations. Measurement and Data 2.M.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	

Learning Goals:
Create an array ● Write equations ● Use a strategy to help solve a problem ● Reflect on the strategy used ● Write a sum ● Solve addition problems ● Write a difference ● Solve subtraction problems ● Show regrouping ● Model subtraction problems

Fluency Expectations:
By the end of Second, students can add and subtract within 100.

Modifications and Accommodations (ELL, SE, BSI, G&T, 504):
● Reteach and Enrichment activities from Big Ideas Math ● Small group instruction ● Use of manipulatives, visuals, and other teaching tools ● Flexible grouping ● Repeating, clarifying or rewording directions ● Teacher modeling of what is expected and necessary steps to complete task ● Provide student with open ended questions that stimulate higher order thinking ● Tiered assignments

Vocabulary:
● array ● column ● equal groups ● equation ● even ● odd ● repeated addition ● row ● addends ● difference ● doubles minus 1 ● doubles plus 1 ● expression ● sum ● compensation ● open number line ● partial sums ● regroup

Resources:
Math textbook - Big Ideas: Modeling Real Life
Supplemental: online sites, counting cubes, ten frame, number line, smart board, varied manipulatives, www.edulastic.com Inside Mathematics

UNIT 2		
Unit Summary	**NJSLS Standards**	**Essential Questions**
In this unit students will ● Understand place value ● Understand counting ● Understand adding numbers ● Understand subtraction numbers	NJSLS ***Number and Operations in Base Ten*** 2.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: 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.A.2 Count within 1000; skip-count by 5s, 10s, and 100s. 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. 2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	● How do you use place value to find the values of numbers and describe numbers in different ways? ● How can you use place value to model, write, and compare 3-digit numbers? ● What are some strategies for adding and subtracting 3-digit numbers?

	2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations. 2.NBT.B.7 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. 2.NBT.B.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. 2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations. *(Explanations should be supported by drawings and objects)*	
Learning Goals: Model and write numbers ● Represent numbers in different ways ● Compare numbers and their values ● Explain how to use different counting strategies ● Explain how to use different subtraction strategies ● Model subtraction problems		
Fluency Expectations: By the end of Second, students can add and subtract within 100.		

Modifications and Accommodations (ELL, SE, BSI, G&T, 504): ● Reteach and Enrichment activities from Big Ideas Math ● Small group instruction ● Use of manipulatives, visuals, and other teaching tools ● Flexible grouping ● Repeating, clarifying or rewording directions ● Teacher modeling of what is expected and necessary steps to complete task ● Provide student with open ended questions that stimulate higher order thinking ● Tiered assignments
Vocabulary: ● expanded form ● hundred ● hundreds place ● standard form ● hundreds place ● standard form ● thousand ● word form ● compare ● decrease ● equal to ● greater than ● increase ● less than ● compatible numbers
Resources: Math textbook - Big Ideas: Modeling Real Life Supplemental: online sites, counting cubes, ten frame, number line, smart board, varied manipulatives, www.edulastic.com Inside Mathematics

UNIT 3 - Measurement and Data - Chapters 11 - 14		
Unit Summary	**NJSLS Standards**	**Essential Questions**
In this unit students will ● Understand measurement ● Understand length problems ● Understand data ● Understand money and time	NJSLS: ***Measurement and Data*** 2.M.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. 2.M.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. 2.M.A.3 Estimate	● How do you use the value of coins and bills to find the total value of a group of money? ● How do you read times shown on analog and digital clocks? ● What are some of the methods and tools that can be used to estimate and measure length? ● What are some of the methods and tools that can be used to estimate and measure length in metric units?

	lengths using units of inches, feet, centimeters, and meters. 2.M.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. 2.M.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. 2.M.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram. 2.M.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. 2.M.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have? 2.DL.A.1 Understand that people collect data to answer questions. Understand that data can vary	● How do tally charts, picture graphs, and bar graphs help you solve problems?

	2.DL.A.2 Identify what could count as data (e.g., visuals, sounds, numbers). 2.DL.B.3 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.DL.B.4 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.	

Learning Goals:
● Compare the measurements of different objects ● Measure objects ● Compare measurement tools to solve problems ● Reflect on the measurement strategy I used ● Represent data in different ways ● Interpret data in different ways ● Compare the value of one coin to another and tell the time ● Solve money and time problems

Fluency Expectations:
By the end of Second, students can add and subtract within 100.

Modifications and Accommodations (ELL, SE, BSI, G&T, 504):
● Reteach and Enrichment activities from Big Ideas Math ● Small group instruction ● Use of manipulatives, visuals, and other teaching tools ● Flexible grouping ● Repeating, clarifying or rewording directions ● Teacher modeling of what is expected and necessary steps to complete task ● Provide student with open ended questions that stimulate higher order thinking ● Tiered assignments

Vocabulary:
● centimeter ● estimate ● foot ● inch ● meter ● yard ● bar graph ● data ● key ● line plot ● picture graph ● survey ● $1

bill ● $5 bill ● $10 bill ● $20 bill ● a.m. ● cents ● cent sign ● dime ● dollar ● dollar sign ● half past ● midnight ● nickel ● noon ● penny ● p.m. ● quarter ● quarter past ● quarter to
Resources: Math textbook - Big Ideas: Modeling Real Life Supplemental: online sites, counting cubes, ten frame, number line, smart board, varied manipulatives, www.edulastic.com Inside Mathematics

UNIT 4 - Geometry - Chapter 15		
Unit Summary	**NJSLS Standards**	**Essential Questions**
In this unit students will ● Understand shapes	NJSLS: ***Geometry*** 2.G.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.5 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. *(Sizes are compared directly or visually, not compared by measuring)* 2.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 2.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of,	● What are some two-dimensional shapes and three-dimensional shapes? ● How can you show equal shares of shapes?

	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.*For example, students partition a rectangle (i.e., the whole) into three equal shares, identify each of the shares as a 'third' and describe the rectangle as three 'thirds'.*	

Learning Goals:
Compare one shape to another ● Draw different shapes

Fluency Expectations:
By the end of Second, students can add and subtract within 100.

Modifications and Accommodations (ELL, SE, BSI, G&T, 504):
● Reteach and Enrichment activities from Big Ideas Math ● Small group instruction ● Use of manipulatives, visuals, and other teaching tools ● Flexible grouping ● Repeating, clarifying or rewording directions ● Teacher modeling of what is expected and necessary steps to complete task ● Provide student with open ended questions that stimulate higher order thinking ● Tiered assignments

Vocabulary:
● angle ● cube ● edge ● face ● fourths ● halves ● hexagon ● octagon ● pentagon ● polygon ● quadrilateral ● rhombus ● right angle ● side ● thirds ● vertex

Resources:
Math textbook - Big Ideas: Modeling Real Life
Supplemental: online sites, counting cubes, ten frame, number line, smart board, varied manipulatives, www.edulastic.com Inside Mathematics