Mathematics Department

Grade 2

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Scope and Sequence

Month	Grade 2	
September	**Grade 2 Math Baseline Assessment** **Chapter 1: Numbers to 1,000** ● *Counting to 1,000* ● *Place Value* ● *Comparing and Ordering Numbers* ● *Number Patterns* **Fact Fluency Assess #1**	**Strategies Interventions: Bridges Volume 2: Addition & Subtraction**
October	**Chapter 2: Addition Within 1,000** ● *Adding Fluently Within 100* ● *Adding Without Regrouping* ● *Adding with Regrouping in Ones* **Chapter 3: Subtraction Within 1,000** ● *Subtracting with Regrouping in Hundreds and Tens* ● *Adding with Regrouping in Hundreds, Tens, and Ones* ● *Subtracting Across Zeros* **Benchmark Assessment #1 (Chapters 1 through 3)**	
November	**Chapter 4: Using Bar Models: Addition and Subtraction** ● *Using Part-Whole in Addition and Subtraction* ● *Adding and Taking Away Sets* ● *Comparing Two Sets* ● *Real-World Problems: Two-Step Problems* **Fact Fluency Assess #2** **A Note about Bar Models**: Students do not have to be able to draw bar models independently until Grade 3: In Grade 2 the goal is for students to understand and use bar models to	

	solve problems. Use: construction strips of paper- Pictures of bar models which contain ? -Students have to label.	
December	**Chapter 5: Length** ● *Measuring in Meters* ● *Measuring in Centimeters* ● *Comparing and Ordering Metric Lengths* ● *Real World Problems: Addition and Subtraction of Metric Lengths* ● *Measuring in Feet* ● *Measuring in Inches* ● *Comparing and Ordering Customary Lengths* ● *Real World Problems: Addition and Subtraction of Customary Lengths*	
January	**Book B** **Chapter 7: Graphs and Line Plots** ● *Picture Graphs* ● *Bar Graphs* ● *Line Plot* **Benchmark Assessment #2 (Ch 4, 5, 7)**	
February	**Chapter 10: Time and Money** ● *Reading and Writing Time* ● *Using A.M. and P.M.* ● *Bills* ● *Comparing Amounts of Money* ● *Real World Problems: Money* Two separate assessments on Time and Money- Chapter 10A (Time) and Chapter 10B (Money)	
March	**Review Addition & Subtraction & Bar Models (approx 1 week)** ● *Adding with Regrouping in Tens* ● *Adding with Regrouping in Ones and Tens* ● *Adding 4 Two-Digit Numbers* ● *Subtracting with Regrouping in Hundreds and Tens* ● *Adding with Regrouping in Hundreds, Tens, and Ones* ● *Subtracting Across Zeros* **Fact Fluency Assess #3 (Reassess as needed)** **Chapter 8: Multiplication & Division** ● *How to Multiply* ● *How to Divide* ● *Real-World Problems: Multiplication and Division*	

	• *Odd and Even Numbers*	
April	**Chapter 9: Multiplication Tables** • *Multiply by 2* • *Multiply by 5* • *Multiply by 10* • *Multiply by 3* • *Multiply by 4* **Grade 2 Summative Spring Assessment**	
May	**Chapter 11: Shapes** • *Lines and Surfaces* • *Flat Shapes* • *Solid Shapes* **Start Chapter 6: Mass (in preparation for Grade 3)** • *Measuring in Kilograms* • *Measuring in Grams* • *Comparing and Ordering Masses in Kilograms and Grams* • *Real World Problems: Addition and Subtraction of Masses* **Fact Fluency Assess #4**	
June	**Finish Chapter 6: Mass (in preparation for Grade 3)**	

Unit 1

Numbers to 1,000
Addition & Subtraction

Summary and Rationale

Students extend their concept of numbers, and learn how to count, read, and write up to 1,000. Base- ten blocks, place-value charts, and number lines are used to develop the association between the physical representation of the number, the number symbol, and the number word. The concept of place-value is extended to the hundreds place value.

Students apply "addition" concepts to three-digit numbers. They use multiple regroupings by using base-ten blocks and place-value charts as concrete representations, which allow them to visualize addition with regrouping in the ones and tens place.

Students perform multi-digit subtraction with and without regrouping. They use base-ten blocks and place-value charts as concrete representations, which aid them in visualizing the regrouping of tens as ones, hundreds as tens, and hundreds as tens and ones. Another method of subtraction introduced in this unit is subtraction across zeros, through which regrouping is done in the hundreds first, followed by tens and ones.

Students use place-value and number bond strategies such as *adding 10 and subtracting extra ones* and *adding 100 and subtracting extra tens* to help them with mental addition and subtraction. The number line is used as a visual representation to illustrate the rounding concept, which is an important application of place value and number sense. Students round numbers to the nearest 10 and estimate sums and differences to check reasonableness of answers.

Pictorial representation of sets as parts making up a whole are useful to help students visualize and represent adding on and taking away sets when solving addition and subtraction real-world problems. Labeling the pictorial representations with words as well as numbers, is encouraged so they can illustrate a problem and indicate the known and the unknown parts of the whole. Comparing sets using pictorial representations helps students to see clearly whether to add or subtract to solve a given problem.

Recommended Pacing

Math in Focus Chapter 1: Numbers to 1,000
Math in Focus Chapter 2: Addition Within 1,000
Math in Focus Chapter 3: Subtraction Within 1,000
Math in Focus Chapter 4: Using Bar Models: Addition and Subtraction

Standards

Operations & Algebraic Thinking

2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g.,* by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
2.OA.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.3	Work with equal groups of objects to gain foundations for multiplication.
Number & Operations in Base Ten	
2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.
2.NBT.1a	Understand that 100 can be thought of as a bundle of ten tens — called a "hundred."
2.NBT.1b	Understand that 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.2	Count within 1000; skip-count by 5s, 10s, and 100s.
2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
2.NBT.5	With accuracy and efficiency, add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
2.NBT.8	Mentally, add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.[1]
Measurement	
2.M.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.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.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.
K-12.MP.5	Use appropriate tools strategically.
K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Science	
2-ESS1-1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
Integration of Technology	
Use of SmartBoard, playing online games	

8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.2.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives.
9.4.2.CI..2	Demonstrate originality and inventiveness in work.
9.4.2.CT.1	Gather information about an issue and collaboratively brainstorm ways to solve the problem.
9.4.2.CT.2	Identify possible approaches and resources to execute a plan.
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool.

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Number concepts include demonstrating numbers in different ways. Fluency in adding and subtracting basic facts is gained by discovering patterns and using strategies in finding sums and differences. Relationships are developed within addition and subtraction combinations. Three digit numbers can be added with and without grouping. Three digit numbers can be subtracted with and without regrouping. Addition and subtraction can be shown with bar models.	How do you use place value to describe numbers in different ways? How can you use place value to write 3-digit numbers? How can you compare 3-digit numbers? How do you perform addition with and without regrouping? How do you perform subtraction with and without regrouping? How can you draw pictorial representations to help solve addition and subtraction real world problems?

Exploring place value allows students to see how patterns continue.

Three digit numbers are written in standard and expanded form.

Mental math can be used when an exact answer is needed.

Estimation can be used when an exact answer is not needed.

When numbers are added, the result is called the sum.

When numbers are subtracted, the result is called the difference.

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 1: Numbers to 1,000
Math in Focus Assessment Guide Chapter 2: Addition Within 1,000
Math in Focus Assessment Guide Chapter 3: Subtraction Within 1,000
Math in Focus Cumulative Review 1 (Chapters 1 through 3)
Math in Focus Assessment Guide Chapter 4: Using Bar Models: Addition and Subtraction

Math Spring Summative Assessment
Math Centers
Homework
Classwork
Class Participation

Objectives (SLO)

Students will know:

- Hundred, hundreds
- Thousand, thousands
- Standard form
- Expanded form
- Word form
- Greater than (>)
- Less than (<)
- Join
- Set
- Take away
- Compare
- Sum
- Difference

Students will be able to:

- Use base ten blocks and a place-value chart to recognize, read, write, and represent numbers to 1,000.
- Read and write numbers to 1,000 in standard form, expanded form, and word form.
- Use base ten blocks to compare numbers.
- Compare numbers using the terms greater than and less than.
- Compare numbers using symbols > and <.
- Order three digit numbers.
- Identify the greatest number and the least number.
- Identify number patterns.
- Use base-ten blocks to add numbers without and with regrouping.

• Mental addition and subtraction • Number line • Estimate • Reasonable answers	• Add up to three-digit numbers without and with regrouping. • Solve real world addition and subtraction problems. • Use base-ten blocks to add numbers without and with regrouping. • Subtract from three-digit numbers without and with regrouping. • Apply the inverse operations of addition and subtraction. • Use pictorial representations to solve addition and subtraction problems. • Model addition as joining sets. • Model subtraction as taking away. • Model addition and subtraction as comparing sets. • Use pictorial representations to solve two-step addition and subtraction problems. • Add numbers up to 3-digits mentally with and without regrouping. • Subtract up to 3-digit numbers mentally with and without regrouping. • Estimate to check the reasonableness of answers.

Suggested Resources/Technology Tools

Math In Focus Resources Chapter 1: Numbers to 1,000
Math In Focus Resources Chapter 2: Addition Within 1,000
Math In Focus Resources Chapter 3: Subtraction Within 1,000
Math In Focus Resources Chapter 4: Using Bar Models: Addition and Subtraction

<u>Resources and Manipulatives</u>
Base-Ten Blocks
Place-Value Chart
Place-Value Mat
Numbered Dice
Ten-Sided Dice
Number Lines
Number Cards
Connecting Cubes
Counters
Number Cards
Number Cubes

<u>Online Resources</u>
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-2 Grade 2 Concepts by Topic
http://www.abcya.com/base_ten_bingo.htm Base Ten Bingo
http://www.abcya.com/comparing_number_values.htm Comparing Numbers

http://www.abcya.com/guess_the_number.htm Guess the Number: Less Than/Greater Than
http://www.abcya.com/rounding_numbers.htm Estimation
http://www.abcya.com/estimating.htm Estimation and Adding
https://www.mathplayground.com/tb_addition_jr/index.html Moderate Word Problems using Bar Models
https://www.mathplayground.com/tb_addition/index.html Difficult Word Problems using Bar Models
https://jr.brainpop.com/math/additionandsubtraction/addingwithregrouping/ Addition With Regrouping Video
https://jr.brainpop.com/math/additionandsubtraction/subtractingwithregrouping/ Subtraction With Regrouping Video
https://jr.brainpop.com/math/numbersense/rounding/ Rounding Video
https://jr.brainpop.com/math/numbersense/placevalue/ Place-Value to Hundreds Video

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

Small group instruction within the classroom
Differentiation through content, process, product,and environment
Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments.

Special Education - Reteach/Extra practice workbook pages, anchor charts, scaffolded explanations of topics, manipulatives, additional time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas at the start of each chapter.

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

MLL - Select activities which reinforce chapter vocabulary and connections among these words such as:
A Word Wall which includes terms, definitions, and examples
Drawings and numbers to show examples of terms

Gifted and Talented - Enrichment workbook, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

Act as a responsible and contributing community members and employee
Attend to financial well-being
Consider the environmental, social and economic impacts of decisions
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them
Model integrity, ethical leadership and effective management
Plan education and career paths aligned to personal goals

Use technology to enhance productivity increase collaboration and communicate effectively Work productively in teams while using cultural/global competence Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/

Unit 2

Measurement & Data

Summary and Rationale

There are two basic systems of measurement in the United States- customary and metric. The basic units of length in the customary system are feet and inches. In this unit, students learn to estimate and measure lengths of objects using a foot ruler. To further reinforce students' understanding of length, they draw lines of specific lengths and apply these strategies along with addition and subtraction skills to solve real-world one and two-step word problems involving length.

The basic units of length in the metric system are meters and centimeters. In this unit, students estimate and measure medium and short lengths using the standard metric units meters (m) and centimeters (cm). The meter stick and centimeter ruler are used to illustrate length as a concept of measure to determine how long or short an object is. The lengths of curved lines are measured with the help of a piece of string which is placed along the curved line and then measured with a ruler. Students also draw lines of specific lengths.

Collecting, organizing, reporting, and interpreting data are important activities related to students' everyday experiences. In this unit, students analyze more complex picture graphs in which the reading, analysis, and interpretation of the graphs involves symbols that may represent more than one item. This allows symbols to stand for multiples of a number so that larger numbers can be represented. These type of picture graphs turn out to be more presentable, easier to read and make, and assist students in solving real-world problems

Students learn to read time based on the position of the minute hand on the clock and use skip-counting strategies to tell how many minutes have passed and to read and write time in hours and minutes using numerals and words. In addition, students will order events by time and determine how much time has elapsed.

The topic of money provides a natural application of place-value and introduction to decimal notation. Students recognize bills and coins, and their respective values. They use the *dot* to separate dollars from cents when writing money amounts in dollars and to exchange dollars as cents and vice versa. Just as in place value, students compare money from left to right by first comparing the dollars, and then move on to the cents.

Recommended Pacing

Math in Focus Chapter 5: Length
Math in Focus Chapter 7: Graphs and Line Plots
Math in Focus Chapter 10: Time and Money

Standards

Measurement	
2.M.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2.M.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.3	Estimate lengths using units of inches, feet, centimeters, and meters.
2.M.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.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.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.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.M.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?
Data Literacy	
2.DL.1	Understand that people collect data to answer questions. Understand that data can vary.
2.DL.2	Identify what could count as data (e.g., visuals, sounds, numbers).
2.DL.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.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.
Operations & Algebraic Thinking	
2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g.,* by using drawings and equations with a symbol for the unknown number to represent the problem.[1]
Number & Operations in Base Ten	
2.NBT.5	With accuracy and efficiency, add and subtract within 100 using strategies based on place value,

	properties of operations, and/or the relationship between addition and subtraction.
2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP.4	Model with mathematics.
K-12.MP.5	Use appropriate tools strategically.
K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Science	
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.
2-LS2-2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.
K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
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.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.1.2.FL.1	Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).
9.1.2.FP.1	Explain how emotions influence whether a person spends or saves.
9.1.2.FP.2	Differentiate between financial wants and needs.
9.1.2.FP.3	Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society).
9.1.2.PB.1	Determine various ways to save and places in the local community that help people save and accumulate money over time.
9.1.2.PB.2	Explain why an individual would choose to save money.
9.2.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job
9.2.2.CAP.2	Explain why employers are willing to pay individuals to work.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives.
9.4.2.CI..2	Demonstrate originality and inventiveness in work.

9.4.2.CT.1	Gather information about an issue and collaboratively brainstorm ways to solve the problem.
9.4.2.CT.2	Identify possible approaches and resources to execute a plan.
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.IML2	Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).
9.4.2.IML.4	Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Time if the day can be shown in different ways. Duration of an event is determined by reading a clock and comparing the beginning time to the ending time. Standard and non-standard units of measure are used to find measurements. Units of measurement used often depend on the size of an object. Every measurement is an estimate. The precision of measurement depends on the size of the unit used to measure the object. The smaller the unit used, the more precise the measurement. Tools can be used to estimate and measure the lengths of objects to the nearest inch, foot, centimeter, and meter. Inch rulers, yardsticks, centimeter rulers, and meter sticks can be used to measure and compare how long and how tall things are. Money amounts can be shown and counted using bills and coins. Values of money can be represented in different ways. Data can be collected and organized in different charts to display information that can be used to solve problems.	How do you read times on a digital and analog clock? What are some of the tools that can be used to estimate and measure the length of an object? How do you use the value of coins and bills to find the total amount of a group of money? How is money compared? How do picture graphs represent multiplication? How can you collect data and organize that data to show information?

Picture graphs use pictures to show data about things you can count.	

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 5: Length
Math in Focus Cumulative Review 2 (Chapters 4 through 6)
Math in Focus Assessment Guide Chapter 7: Graphs and Line Plots
Math in Focus Cumulative Review 3 (Chapters 7 through 9)
Math in Focus Assessment Guide Chapter 10: Time and Money
Math in Focus Cumulative Review 4 (Chapters 10 & 11)

Math Spring Summative Assessment
Math Centers
Homework
Classwork
Class Participation

Objectives (SLO)

Students will know:	Students will be able to:
● A.M. ● P.M. ● Foot/feet (ft) ● Ruler ● Yardstick ● Length, width, height ● Unit ● Inch (in.) ● Meter (m) ● Meter stick ● $1, $5, $10, $20 bills ● Cent sign ● Dollar sign ($) ● Decimal point ● Picture graph ● Symbol ● Key ● Line plot	● Use the minute hand to show and tell the number for every five minutes after the hour. ● Show and tell time in hours and minutes. ● Use A.M. and P.M. to show morning, afternoon, or night. ● Order events by time. ● Use a ruler to estimate and measure length. ● Use a metric stick to estimate and measure length. ● Compare lengths. ● Find differences in lengths of objects. ● Use a ruler to measure length to the nearest inch. ● Use a centimeter ruler to measure and compare lengths. ● Draw parts of lines of given lengths. ● Use an inch ruler to measure and compare lengths. ● Find the difference in lengths of objects in inches. ● Measure the same objects in inches and feet. ● Understand how measurements relate to the sizes of units. ● Solve one and two-step problems involving length. ● Draw bar models to solve real-world problems. ● Show and count money using coins and bills up to $20. ● Write money amounts using $ and the cents symbol. ● Write dollars as cents and cents as dollars. ● Compare amounts of money using tables. ● Use bar models to solve real-world problems involving addition and subtraction of money.

	• Solve word problems using $ and cents symbols. • Read, analyze, and interpret picture graphs. • Complete picture graphs. • Make picture graphs. • Make a line plot to show data. • Solve real-world problems using picture graphs.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 5: Length
Math in Focus Resources Chapter 7: Graphs and Line Plots
Math in Focus Resources Chapter 10: Time and Money

Resources and Manipulatives
Analog Clock
Paper Clocks
Foot-Long Rulers
Measuring Tape
Measurement Chart
Meter Stick or Measuring Tape
Centimeter Ruler
Paper Bills
Plastic Coins
Counters
Picture Graph
Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-2 Grade 2 Concepts by Topic
https://www.mathplayground.com/candy_cashier.html Cashier
https://www.mathplayground.com/puzzle_pics_money.html Counting Money
https://www.mathplayground.com/puzzle_pics_clocks.html Telling Time
https://jr.brainpop.com/math/measurement/inchesandfeet/ Inches and Feet Video
https://jr.brainpop.com/math/measurement/centimetersmeterskilometers/ Centimeters, Meters, and Kilometers Video
https://jr.brainpop.com/math/time/timetothequarterandhalfhour/ Time to the Quarter and Half Hour Video
https://jr.brainpop.com/math/time/timetotheminute/ Time to the Minute Video
https://jr.brainpop.com/math/money/dollarsandcents/ Dollars and Cents Video
https://jr.brainpop.com/math/money/countingcoins/ Counting Coins Video
https://jr.brainpop.com/math/money/equivalentcoins/ Equivalent Coins Video
https://jr.brainpop.com/math/money/makingchangeunderadollar/ Making Change Video
https://jr.brainpop.com/math/data/pictographs/ Pictographs Video
https://jr.brainpop.com/math/data/linegraphs/ Line Graphs Video

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

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Differentiation through content, process, product,and environment
Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments

Special Education - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas at the start of each chapter.

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

MLL - Using simplified language, modeling, visual aids, manipulatives, vocabulary with images and examples

Gifted and Talented - Enrichment book, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work
Extension Topic- Elapsed Time-Chapter 14

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

- Act as a responsible and contributing community members and employee
- Attend to financial well-being
- Consider the environmental, social and economic impacts of decisions
- Demonstrate creativity and innovation
- Utilize critical thinking to make sense of problems and persevere in solving them
- Model integrity, ethical leadership and effective management
- Plan education and career paths aligned to personal goals
- Use technology to enhance productivity increase collaboration and communicate effectively
- Work productively in teams while using cultural/global competence

Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/

Unit 3

Geometry

Summary and Rationale

In this unit, students use fractions to describe equal parts of a whole. They identify shapes divided into equal fractional parts, as well as, model and name unit fractions for halves, thirds, and fourths, based on the number of equal parts a whole is divided into. Bar model drawings are used to show fractional parts in different ways. Visual models are further used to compare fractional parts and to add and subtract like fractions.

Students recognize, identify, and describe parts of lines and curves that make up plane and solid shapes. They learn to combine parts of lines and curves to draw plane shapes and to identify, classify, and count flat and curved surfaces of solid shapes by using their senses of sight and touch. Students also discover which properties of shapes allow them to slide, stack, or roll.

Two new plane shapes are introduced, the trapezoid and the hexagon. Students combine smaller plane shapes to make larger ones, and separate larger shapes to make smaller ones. They do the same using solid shapes to make and deconstruct models. Activities that involve drawing and copying shapes onto dot and square grid paper act as preparation for learning symmetry and congruence in later grades.

Recommended Pacing

Math In Focus Chapter 11: Shapes

Standards

Geometry	
2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[1] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes
2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical “wholes” need not have the same shape. 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.’
Mathematical Practices	

K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.4	Model with mathematics.
K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.2.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives.
9.4.2.CI..2	Demonstrate originality and inventiveness in work.
9.4.2.CT.1	Gather information about an issue and collaboratively brainstorm ways to solve the problem.

9.4.2.CT.2	Identify possible approaches and resources to execute a plan.
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Fractions can be used to describe how equal parts of a shape are related to a whole shape. Shapes and bar models can be used to represent, compare, add, and subtract fractions. Adding and subtracting like fractions using models and pictures is just like adding and subtracting whole numbers. (Just add or subtract the top numbers.) Properties of parts of lines, curves, and surfaces can be seen and felt. Objects with flat surfaces can slide. Objects that have more than one flat surface can be stacked. Objects that have curved surfaces can be rolled. Planes and solid shapes can be identified and classified. They can be separated and combined to make other shapes.	Which objects can slide? Stack? Roll? Where do we see plane shapes in the real-world? Where do we see solid shapes in the real-world? What is a fraction? How can shapes and bar model drawings be used to represent and compare fractions? How do you add and subtract like fractions?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 11: Shapes
Math in Focus Cumulative Review 4 (Chapters 10 & 11)

Math Spring Summative Assessment
Math Centers
Homework
Classwork
Class Participation

Objectives (SLO)

Students will know:	Students will be able to:
● Equal and unequal ● Whole ● Fraction ● One-half, one-third, one-fourth ● Unit fraction ● Like fractions ● Part of a line ● Curve ● Flat surface ● Curved surface ● Slide ● Stack ● Roll ● Plane shape ● Hexagon ● Trapezoid ● Figure ● Quadrilateral ● Pentagon ● Angle ● Face ● Solid shape ● Cube	● Recognize, identify, and describe parts of lines and curves. ● Draw parts of lines and curves. ● Identify, classify, and count flat and curved surfaces. ● Identify solids that can stack, slide, and/or roll. ● Recognize and identify plane shapes. Combine smaller plane shapes to make larger plane shapes. ● Separate larger plane shapes into smaller plane shapes. ● Combine and separate plane shapes in figures. ● Identify whether a shape is divided into equal fractional parts. ● Read, write, and identify unit fractions for halves, thirds, and fourths. ● Show fractions and a whole using model drawings. ● Compare two or more unit fractions using models of the same size. ● Order two or more unit fractions with or without the use of models of the same size. ● Identify fractions that name more than one equal part of a whole. ● Use models to add and subtract fractions. ● Add and subtract like fractions using models and pictures. ● Identify quadrilaterals as pentagons. ● Recognize and draw shapes having a given number of angles. ● Identify and count the equal faces on a cube.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 11: Shapes

<u>Resources and Manipulatives</u>
Solid Shapes
Attribute Blocks
Paper Shapes
Dot and Grid Paper
Connecting Cubes
Triangle Cards
Paper Shapes

<u>Online Resources</u>
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-2 Grade 2 Concepts by Topic
https://www.mathplayground.com/tangrams.html Tangrams
https://www.mathplayground.com/patternblocks.html Composite Shapes
https://jr.brainpop.com/math/geometry/quadrilaterals/ Quadrilaterals Video
https://jr.brainpop.com/math/fractions/basicpartsofawhole/ Fractional Parts of a Whole Video
https://jr.brainpop.com/math/fractions/equivalentfractions/ Equivalent Fractions

Tier 1 Modifications and Accommodations

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*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas at the start of each chapter.

MLL - Using simplified language, modeling, visual aids, manipulatives, vocabulary with images and examples

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

Gifted and Talented - Enrichment book, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

Act as a responsible and contributing community members and employee
Attend to financial well-being
Consider the environmental, social and economic impacts of decisions
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them
Model integrity, ethical leadership and effective management
Plan education and career paths aligned to personal goals
Use technology to enhance productivity increase collaboration and communicate effectively
Work productively in teams while using cultural/global competence

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Unit 4

Multiplication & Division

Summary and Rationale

Multiplication is initially linked to the part-whole meaning of addition. Joining groups (parts) to find a total (whole) and the use of double facts and addition properties together form an important basis for understanding multiplication as repeated addition. Students add the same numbers to understand the concept of multiplication.

Division is the opposite of multiplication. Numbers sense concepts such as counting and comparing numbers form the groundwork of division. Students explore both meanings of division: finding the number of equal groups of a given size and finding the size of a given number of groups. The use of models is important at this grade level because students may need to rely heavily on manipulatives to comprehend the two meanings of division. Students distribute items equally to understand the concept of sharing equally and distribute items into equal groups to understand the concepts of dividing into equal groups.

Students move to the pictorial and symbolic phases of multiplication and division through the emphasis on equal groups. Multiplication is used to find the number of items in a number of equal groups.
Division is the process of sharing a number of items among a number of groups either by finding the number of items in each group or by finding the number of equal groups that can be formed. The strategies of repeated addition and repeated subtraction are reviewed in this unit.

Students learn the multiplication facts of 2, 5, and 10 using skip-counting and dot-paper strategies. Pictures and fingers illustrate the skip-counting strategy related to computation in multiplication. Using the skip-counting strategy, each finger is used to represent a specific value. Using dot paper for multiplication, each column represents the number of groups while each row represents the number of items in each group.

Students also learn to use related multiplication facts to divide. Division is conceptualized as the inverse of multiplication and as the equal sharing of items.

Recommended Pacing

Math in Focus Chapter 8: Multiplication & Division
Math in Focus Chapter 9: Multiplication Tables

Standards

Operations & Algebraic Thinking

2.OA.3	Work with equal groups of objects to gain foundations for multiplication.
2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
Number & Operations in Base Ten	
2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP.3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.
K-12.MP.5	Use appropriate tools strategically.
K-12.MP.6	Attend to precision.
K-12.MP.8	Look for and express regularity in repeated reasoning.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
Science	
2-ESS1-1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.2.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
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9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool.

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Multiplication is the same as adding equal groups. Dividing is the same as sharing things equally or putting things in equal groups. Any even number can be represented by two equal numbers. Multiplication is used to find the number of items in a number of equal groups. Division is the process of sharing a number of items among a number of groups either by finding the number of items in each group or by finding the number of equal groups that can be formed.	How can multiplication be modeled? How can division be modeled? What is multiplication? What are some strategies for multiplication? How does the skip-counting strategy for multiplication work? How does the dot-paper strategy for multiplication work? What is division? What are some strategies for division?

Division is the opposite of multiplication. Pictures and fingers illustrate the skip-counting strategy related to multiplication. Using the skip-counting strategy, each skip is used to represent a specific value. Using dot paper for multiplication, each column represents the number of groups while each row represents the number of items in each group.	How are multiplication and division related and how does this help us with number facts?
Evidence of Learning (Assessments)	
Math in Focus Assessment Guide Chapter 8: Multiplication & Division *Math in Focus* Assessment Guide Chapter 9: Multiplication Tables *Math in Focus* Cumulative Review 3 (Chapters 7 through 9) Math Spring Summative Assessment Math Centers Homework Classwork Class Participation	
Objectives (SLO)	
Students will know: ● Times ● Equal groups ● Multiply ● Repeated addition and subtraction. ● Share ● Divide ● Multiplication and division sentence ● Multiplication and division story ● Odd and even numbers ● Related multiplication facts.	Students will be able to: ● Relate repeated addition to the concept of multiplication. ● Use objects and pictures to find the number of items in each group when sharing equally. ● Relate sharing equally to the concept of division. ● Use objects and pictures to show the concept of division as finding the number of equal groups. ● Use equal groups and repeated addition to multiply. ● Make multiplication stories about pictures. ● Make multiplication sentences. ● Divide to share equally. ● Divide by repeated subtraction of equal groups. ● Make groups of 2 to find odd and even numbers. ● Understand that an even number is the sum of two equal numbers. ● Solve multiplication and division word problems. ● Use base-ten blocks and a place-value chart to recognize, read, write, and represent numbers to 1,000. ● Count by 1s, 10s, and 100s to 1,000. ● Read and write numbers to 1,000 in standard form, expanded form, and word form.

	● Skip count and use dot paper to multiply by 5 and 10. ● Use known multiplication facts to find new multiplication facts. ● Identify related multiplication facts. ● Use related multiplication facts to find related division facts. ● Write a multiplication sentence and a related division sentence. ● Skip count by 3s and 4s. ● Use dot paper to multiply by 3 and 4. ● Solve multiplication and division word problems ● Find division facts using related multiplication facts.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 8: Multiplication & Division
Math in Focus Resources Chapter 9: Multiplication Tables

Resources and Manipulatives
Connecting Cubes
Counters
Base-Ten Blocks
Place-Value Chart
Place-Value Mat
Dot Paper
Hundreds Chart
Multiplication Chart
Number Wheel
Number Cards
Number Stickers
Number Cubes
Multiplication Cards

Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-2 Grade 2 Concepts by Topic
http://www.abcya.com/multiplication_mine_jr.htm Multiplication
https://www.mathplayground.com/ASB_TugTeamMultiplication.html Multiplication
https://www.mathplayground.com/math_monster_multiplication.html Multiplication
https://www.mathplayground.com/multiples.html Multiples
https://jr.brainpop.com/math/multiplicationanddivision/arrays/ Arrays Video
https://jr.brainpop.com/math/additionandsubtraction/repeatedaddition/ Repeated Addition/Multiplication Video
https://jr.brainpop.com/math/additionandsubtraction/repeatedsubtraction/ Repeated Subtraction/Multiplication Video
https://jr.brainpop.com/math/multiplicationanddivision/multiplyingby0or1/ Multiplying by 0 or 1 Video

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