

Readington Township Public Schools

Grade 1 Math

Authored by: Sarah Pauch

Reviewed by: Erik Yates
Supervisor of Math, Science, and Technology

Approval Date: September 2014
Updated NJ Standards August 2016

Members of the Board of Education:

David Livingston, President

Cheryl Filler, Vice-President

Barbara Dobozyński

Vincent Panico

Eric Zwerling

Laura Simon

Ray Egbert

Bill Goodwin

Wayne Doran

Superintendent: Dr. Barbara Sargent

Readington Township Public Schools

Whitehouse Station, NJ 08889

www.readington.k12.nj.us

I. OVERVIEW

Readington Township Public Schools' K-5 mathematics curriculum provides students with a strong foundation in mathematics content while promoting and instilling the skills of problem-solving, communication in mathematics, making mathematical connections, and reasoning. Throughout the delivery of the K-5 mathematics program, various tools and technology are employed, including manipulatives, calculators, software, apps, videos, websites, and computing devices (computers, tablets, smart phones, interactive whiteboards, etc.). A strong focus of the program is on promoting high levels of mathematical thought through experiences which extend beyond traditional computation.

In Grade 1, instructional time focuses on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes. (NJSLS)

II. STUDENT OUTCOMES (Linked to New Jersey Student Learning Standards for Mathematics 2016)

OPERATIONS AND ALGEBRAIC THINKING

Represent and solve problems involving addition and subtraction.

NJSLS.MATH.CONTENT.1.OA.A.1

Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.¹

NJSLS.MATH.CONTENT.1.OA.A.2

Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Understand and apply properties of operations and the relationship between addition and subtraction.

NJSLS.MATH.CONTENT.1.OA.B.3

Apply properties of operations as strategies to add and subtract.² *Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) (Students need not use formal terms for these properties)*

NJSLS.MATH.CONTENT.1.OA.B.4

Understand subtraction as an unknown-addend problem. *For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.*

Add and subtract within 20.

NJSLS.MATH.CONTENT.1.OA.C.5

Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

NJSLS.MATH.CONTENT.1.OA.C.6

Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Work with addition and subtraction equations.

NJSLS.MATH.CONTENT.1.OA.D.7

Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are

true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

NJSLS.MATH.CONTENT.1.OA.D.8

Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.*

NUMBER OPERATIONS IN BASE TEN

Extend the counting sequence.

NJSLS.MATH.CONTENT.1.NBT.A.1

Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

NJSLS.MATH.CONTENT.1.NBT.B.2

Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

NJSLS.MATH.CONTENT.1.NBT.B.2.A

10 can be thought of as a bundle of ten ones — called a "ten."

NJSLS.MATH.CONTENT.1.NBT.B.2.B

The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

NJSLS.MATH.CONTENT.1.NBT.B.2.C

The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

NJSLS.MATH.CONTENT.1.NBT.B.3

Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.

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

NJSLS.MATH.CONTENT.1.NBT.C.4

Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g. base ten blocks) 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

NJSLS.MATH.CONTENT.1.NBT.C.5

Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

NJSLS.MATH.CONTENT.1.NBT.C.6

Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.

Measure lengths indirectly and by iterating length units.

NJSLS.MATH.CONTENT.1.MD.A.1

Order three objects by length; compare the lengths of two objects indirectly by using a third object.

NJSLS.MATH.CONTENT.1.MD.A.2

Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Tell and write time.

NJSLS.MATH.CONTENT.1.MD.B.3

Tell and write time in hours and half-hours using analog and digital clocks.

Represent and interpret data.

NJSLS.MATH.CONTENT.1.MD.C.4

Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Reason with shapes and their attributes.

NJSLS.MATH.CONTENT.1.G.A.1

Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

NJSLS.MATH.CONTENT.1.G.A.2

Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.¹

NJSLS.MATH.CONTENT.1.G.A.3

Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

III. ESSENTIAL QUESTIONS AND CONTENT

Unit 1, Partners and Number Patterns Through 10

What do I know about numbers less than 10?

Unit 2, Addition and Subtraction Strategies

What does it mean to add or to subtract?

Are there different ways to show addition or subtraction?

Unit 3, Unknown Numbers in Addition and Subtraction

Can I use strategies to find missing numbers in addition or subtraction problems?

Unit 4, Place Value Concepts

How can I use what I know about place value to read and write numbers up to 100 and beyond?

Unit 5, Place Value Situations

What patterns are there in place value?

Unit 6, Comparisons and Data

How can I collect, represent, and compare information that I have?

Unit 7, Geometry, Measurement, and Equal Shares

What should I use to measure how big things are?

What shapes can I make with other shapes?

How do I know what time it is?

Unit 8, Two-Digit Addition

How can I use what I know about place value to add numbers bigger than 10?

IV. STRATEGIES

- Teacher presentation
- Daily Routines
- Math Talk (solve, explain, question, and justify)
- Student Pairs
- Scenarios to act out
- Small Group instruction

V. EVALUATION

- Formative Assessment: Quick Quizzes and Teacher observation
- End of Unit Assessment

VI. REQUIRED RESOURCES

- *Math Expressions* by Dr. Karen Fuson; Published by Houghton Mifflin Harcourt
- Student Workbook Volumes 1 and 2
- Homework Book Volumes 1 and 2

Supplemental Materials:

- IXL
- Brain Pop
- [Think Central](#)

VII. SCOPE AND SEQUENCE

Unit 1: Partners and Number Patterns Through 10 (16 days)

- Numbers Through 10
- Patterns with Partners Through 10

Unit 2: Addition and Subtractions Strategies (24 days)

- Represent Addition Situations
- Solve Addition Equations
- Solve Subtraction Equations
- Equation Exploration

Unit 3: Unknown Numbers in Addition and Subtraction (19 days)

- Counting On with Addition Situations
- Counting On with Subtraction Situations
- Mixed Story Problems

Unit 4: Place Value Concepts (20 days)

- Tens and Teens
- Place Value to 100
- Addition Strategies

Unit 5: Place Value Situations (30 days)

- Teen Solution Methods

- Find Patterns and Relationships
- Unknown partners with teen totals
- Subtraction with teen numbers
- Solving problems with three addends

Unit 6: Comparisons and Data (15 days)

- Represent and Compare Data
- Compare Problem Types

Unit 7: Geometry, Measurement, and Equal Shares (23 days)

- Tell and Write Time
- Shapes and Equal Shares
- Measure and Order by Length

Unit 8: Two-Digit Addition (10 days)

- Add 2-Digit Numbers