Verona Public School District
Curriculum Overview

Math - Grade 2

Curriculum Committee Members:
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Supervisor:
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Curriculum Developed:
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Board Approval Date:
August 30, 2022

Verona Public Schools
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Verona Public Schools Mission Statement:

In partnership with a supportive community, we inspire our students to be creative, critical thinkers and compassionate global citizens through dynamic teaching, meaningful curricula, and enriching experiences.

Course Description:

2nd Grade Math focuses 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.

Prerequisite(s):

1st Grade Math

Standard 8: Technology Standards

The curricular expectation for the Standard 8: Computer Science and Design Thinking standards in classes that are not specifically focused on computer science or engineering is infusion and integration throughout the curriculum. These are not intended to be standards for separate, stand alone lessons. The computer science and design thinking standards and practices are to be incorporated into other disciplines and contexts as appropriate.

8.1: Computer Science	8.2: Design Thinking
X Computing Systems (CS) Networks and the Internet (NI) Impacts of Computing (IC) **X** Data & Analysis (DA) **X** Algorithms & Programming (AP)	Engineering Design (ED) Interaction of Technology and Humans (ITH) Nature of Technology (NT) Effects of Technology on the Natural World (ETA) Ethics and Culture (EC)

Computer Science and Design Thinking Practices

1. Fostering an Inclusive Computing and Design Culture
2. Collaborating Around Computing and Design
3. Recognizing and Defining Computational Problems
4. Developing and Using Abstractions
5. Creating Computational Artifacts
6. Testing and Refining Computational Artifacts
7. Communicating About Computing and Design

SEL Competencies and Career Readiness, Life Literacies, and Key Skills Practices

The curricular expectation for the Standard 9: Career Readiness, Life Literacies, and Key Skills standards is infusion and integration throughout the curriculum. These are not intended to be standards for separate, stand alone lessons. The CLKS are to be incorporated into other disciplines and contexts as appropriate.

Social and Emotional Learning Core Competencies: *These competencies are identified as five interrelated sets of cognitive, affective, and behavioral capabilities*	**Career Readiness, Life Literacies, and Key Skills Practices:** *Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.*
Self-awareness: The ability to accurately recognize one's emotions and thoughts and their influence on behavior. This includes accurately assessing one's strengths and limitations and possessing a well-grounded sense of confidence and optimism.	**CLKS6** Model integrity, ethical leadership, and effective management. **CLKS7** Plan education and career paths aligned to personal goals.
Self-management: The ability to regulate one's emotions, thoughts, and behaviors effectively in different situations. This includes managing stress, controlling impulses, motivating oneself, and setting and working toward achieving personal and academic goals.	**CLKS2** Attend to financial well-being. **X CLKS4** Demonstrate creativity and innovation. **X CLKS5** Utilize critical thinking to make sense of problems and persevere in solving them. **CLKS8** Use technology to enhance productivity, increase collaboration, and communicate effectively.
Social awareness: The ability to take the perspective of and empathize with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior, and to recognize family, school, and community resources and supports.	**X CLKS1** Act as a responsible and contributing community member and employee. **CLKS6** Model integrity, ethical leadership, and effective management.
Relationship skills: The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. This includes communicating clearly, listening actively, cooperating, resisting inappropriate social pressure, negotiating conflict constructively, and seeking and offering help when needed.	**CLKS6** Model integrity, ethical leadership, and effective management. **X CLKS9** Work productively in teams while using cultural global competence.
Responsible decision making: The ability to make constructive and respectful choices about personal behavior and social interactions based on consideration of ethical standards, safety concerns, social norms, the realistic evaluation of consequences of various actions, and the well-being of self and others.	**CLKS3** Consider the environmental, social, and economic impact of decisions. **X CLKS5** Utilize critical thinking to make sense of problems and persevere in solving them. **CLKS6** Model integrity, ethical leadership, and effective management.

Course Materials

Core Instructional Materials: *These are the board adopted and approved materials to support the curriculum, instruction, and assessment of this course.*	**Differentiated Resources**: *These are teacher and department found materials, and also approved support materials that facilitate differentiation of curriculum, instruction, and assessment of this course.*
• Dimensions Math 2A Teacher's Edition • Dimensions Math 2B Teacher's Edition • Dimensions Math 2A Textbook • Dimensions Math 2B Textbook • Dimensions Math 2A Workbook • Dimensions Math 2B Workbook • Dimensions Math 2A Tests • Dimensions Math 2B Tests	• NJSLS Math • Singapore Math Intensive Practice US 2A • Singapore Math Intensive Practice US 2B • Challenging Word Problems for Primary Mathematics Common Core 2 • Math Flips (Website - includes directions) (Drive folder - card decks and Google Slides versions) • Extension Activities for Gifted Math Learners http://ncaigirp.ncdpi.wikispaces.net/Mathematics+K-2 • Howard County MD Grade 2 Mathematics https://hcpss.instructure.com/courses/106

Year-At-A-Glance Pacing

September	October	November	December	January	February	March	April	May	June
Unit 1				Unit 2		Unit 3	Unit 4	Unit 5	Unit 6
Chs.1, 2, 8, 3				Chs. 6, 7, 9		Chs. 10, 12, 14	Ch. 11	Ch. 15	Chs. 4, 5, 13

Mathematical Practice Standards (Revised for Readability*)

Math Practice 1: Make sense of mathematics. Mathematically proficient students begin a problem with a strategy in mind, but can also revise it until they get the result they are looking for. They feel comfortable representing their thinking using pictures, numbers, symbols, and/or words and can compare their method to other problem-solving strategies.

Math Practice 2: Add or remove context to solve problems. Mathematically proficient students understand what the numbers, symbols, pictures, words, etc. in their work represent. They feel comfortable switching back and forth between a problem's context and its representation and use the form that best fits the situation.

Math Practice 3: Explain and defend your reasoning. Mathematically proficient students can convince others that their reasoning is correct. This includes convincing others who have not solved the problem as well as those who have solved it but reached different conclusions.

Math Practice 4: Ask and answer questions about the world. Mathematically proficient students ask and answer questions about the world. They begin with a question in mind, determine what information is needed to answer it, and get the information. Next, they use that information to create a mathematical representation to answer the question. Then, they verify whether their representation works or needs improvement. If necessary, they repeat this process, adjusting both what information they use and how they use it until they sufficiently answer the question.

Math Practice 5: Use tools to make sense of mathematics. Mathematically proficient students use tools when they are helpful with making sense of mathematics. This includes physical tools (such as rulers, calculators, and manipulatives), virtual tools (such as graphing software and spreadsheets), or self-created tools (such as tables to organize data or estimation to see if an answer is reasonable).

Math Practice 6: Communicate precisely. Mathematically proficient students communicate precisely with others. This includes using proper definitions, defining their variables, specifying their units, and labeling axes.

Math Practice 7: Simplify problems by using their structure. Mathematically proficient students use patterns and structure to strategically transform complicated problems into one or more simpler problems. For example, a student may think of 99 + 46 as 100 + 45 or find the area of a complicated shape by breaking it into multiple simpler shapes.

Math Practice 8: Simplify problems by noticing patterns. Mathematically proficient students notice patterns and use them to simplify problems. For example, a student may notice repeated addition and multiply instead or may create a function to represent a repeated operation.

**Disclaimer These are not the actual Standards for Mathematical Practice. This revised version is Robert Kaplinsky's attempt at making them readable by as many people as possible. Download your copy at https://www.robertkaplinsky.com/smp.*

Verona Elementary Schools — 2nd Grade Math

Unit 1: Addition and Subtraction/Mental Math

Unit Duration: 9-10 Weeks & 4-5 Weeks

-Please note: Unit 1 is taught in 2 parts the content is unified in concepts and skills, but taught separately in time in order to boost retention

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

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:
1.NBT.B.2.A - 10 can be thought of as a bundle of ten ones — called a "ten."
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.
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).
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 <.
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 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.
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:
2.NBT.A.1.A - 100 can be thought of as a bundle of ten tens — called a "hundred."
2.NBT.A.1.B - The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
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.
2.NBT.B.5 - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
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.
2.OA.A.1 - Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
2.OA.B.2 - Fluently add and subtract within 20 using mental strategies.2 By end of Grade 2, know from memory all sums of two one-digit numbers.

Interdisciplinary Standards (NJSLS):

RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
RI.2.7. Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, 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 linking their explicit comments to the remarks of others. C. Ask for clarification and further explanation as needed about the topics and texts under discussion.
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.
NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Technology Integration (NJSLS 8):

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.
8.1.2.DA.3: Identify and describe patterns in data visualizations.
8.1.2.AP.4: Break down a task into a sequence of steps.

21st Century Skills Integration (NJSLS 9):

CLKS1 Act as a responsible and contributing community member and employee.
CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them..
CLKS9 Work productively in teams while using cultural/global competence.

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.3: Use a variety of types of thinking to solve problems

Transfer Goal:

Students will be able to <u>independently</u> use their learning to implement effective strategies for modeling additive and subtractive thinking.

Students will understand that:

- Addition and subtraction can both be thought about using the part-part-whole pattern
- Math facts will demonstrate patterns and relationships among numbers
- Numbers are flexible - numbers can be decomposed and recomposed many ways
- If either addend increases, the sum increases by the same amount
- If the first number increases, the answer increases by the same amount and if the second number increases the answer decreases In subtraction when comparing facts, if the 1st number increases the resulting difference increases by the same amount. If the 2nd number increases the resulting difference decreases.
- There are multiple ways to solve the same problem.
- Knowing two parts can lead to the whole. Knowing the whole and one part can lead to the other part
- There are multiple ways to solve comparing problems
- The algorithm in both addition and subtraction is a step by step process
- Regrouping will be necessary at times
- How to decompose numbers to add and subtract mentally

Essential Questions:

- Do you notice any patterns when looking at the addition and subtraction facts?Are the addition patterns different from the subtraction patterns? Why is this so?
- How can you decompose the addends to solve addition?
- How can you decompose the minuend and subtrahend to solve subtraction?
- How can you solve for the part or whole of an equation?
- What are different ways we can solve a comparison problem?
- What does it mean to regroup? When do you need to regroup?

Students will know:

- Addition facts to 20
- Subtraction facts to 20

Students will be able to:

- Use linking cubes to help with addition and subtraction strategies
- Use number bonds to help with addition and subtraction strategies

- Addend
- Sum
- Difference
- Minuend???
- Subtrahend???
- Base ten system (100 can be thought of as a bundle of ten tens)
- Investigate addition and subtraction of three-digit numbers

- Use the bar model method to solve addition and subtraction word problems
- Use place value discs, place value organizers, graph paper to help solve three-digit addition and subtraction problems with and without regrouping
- Flexibly decompose and recompose numbers as needed
- subtract with regrouping within 20 by decomposing the minuend and subtrahend
- solve word problems involving a missing part or whole
- solve addition and subtraction problems involving comparison
- add and subtract within 1,000 without regrouping by using an algorithm
- add and subtract two numbers within 1,000 with regrouping tens and ones, regrouping from the tens place and hundreds place
- subtract across zeros
- add and subtract tens and ones to a two digit number mentally
- add and subtract multiples of 10 form a two-digit or three-digit number mentally
- add and subtract 97, 98, or 99 to a two-digit or three-digit number mentally.

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Chapter Tests
Differentiated Chapter Tests

Other Evidence:

Formal:
- Providing written/oral response to the EQs
- Responses to the Do problems or workbook practice

Informal
- Classwork
- Teacher observation of independent and/or group work
- Proper use of subject specific vocabulary

Stage 3: Activities

Primary Activities:

Chapter 1: Numbers to 1000
Chapter Opener
1. Tens and Ones
2. Counting by Tens or Ones
3. Comparing Tens and Ones
4. Hundreds, Tens, and Ones
5. Place Value
6. Comparing Hundreds, Tens, and Ones
7. Counting by Hundreds, Tens, or Ones
8. Practice

Chapter 2: Addition and Subtraction - Part 1
Chapter Opener
1. Strategies for Addition
2. Strategies for Subtraction
3. Parts and Whole
4. Comparison
5. Practice

Chapter 3: Addition and Subtraction - Part 2
Chapter Opener
1. Addition Without Regrouping Subtraction Without Regrouping
2. Addition with Regrouping Ones
3. Addition with Regrouping Tens
4. Addition with Regrouping
5. Tens and Ones
6. Practice A
7. Subtraction with Regrouping from Tens
8. Subtraction with Regrouping from Hundreds
9. Subtraction with Regrouping from Two Places
10. Subtraction with Regrouping across Zeros
11. Practice B
12. Practice C

Chapter 8: Mental Calculation
Chapter Opener
1. Adding Ones Mentally
2. Adding Tens Mentally
3. Making 100
4. Adding 97, 98, or 99
5. Practice A
6. Subtracting Ones Mentally
7. Subtracting Tens Mentally
8. Subtracting 97, 98, or 99
9. Practice B
10. Practice C

Supplemental Activities:

Greatest or Least?
Find Your Match - Two-Digit
Three in a Row
More or Fewer Face-Off
My Name Is…
Place-value Hop
Place-value Hangman
Find Your Match - Three-digit
Match Me
Place Value Game
Race to 100
Choral Counting
What's My Rule?
Cribbage
What Number Am I?

Takeover!
Rock, Paper, Scissors, Math!
Alligator! Alligator! Alligator!
Flash Cards
Addition Face-off
Salute!
Model Posters
KenKen

501 Up
Add 'em Up! 2 Numbers
Race to the Sum for 2 Numbers
Add 'em Up! 3 Numbers
Add 'em Up! 4 Numners
501 Out
Race to the Difference
Greatest Difference
3 in a Row

501 Up!
Choral Counting
Memory
Add 97, 98, or 99
Three in a Row - to 100!
501 Down!
Subtract 97, 98, or 99
Three in a Row - Subtraction

Reference Materials

Dimensions Math 2A Teacher's Edition
Dimensions Math 2A Textbook
Dimensions Math 2A Workbook
Dimensions Math 2A Tests
Singapore Math Intensive Practice US 2A
Challenging Word Problems for Primary Mathematics Common Core 2

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1. Preferential Seating
2. Extended time for task completion (Assignments, Assessments, etc..)
3. Provide copy of accurate notes
4. Breaking down and chunking assignments
5. Restating and clarifying instruction
6. Extra book provided to keep at home
7. Organizational assistance (notebook, assignment pad, lab materials, etc..)
8. Adjusting class schedule to alternate instruction (morning/afternoon)
9. Modify test and quizzes
10. Provide manipulative examples
11. Allow for oral follow up
12. Use of Graphic Organizers (charts, visual outlines, etc..)
13. Repetition and clarification of directions
14. Assessments and class work read aloud
15. Provide checklists
16. Movement breaks
17. Visual representation of print version
18. Use of a alarm/fimer to aide with time management, including transitional warning
19. Nonverbal cue for off-task behavior
20. Provide positive reinforcement
21. Hands on learning activities
22. Ask student to restate directions or concepts taught
23. Deliver directions one step at a time, gradually increasing the number of steps delivered
24. Explain the purpose of the assignment to the student
25. Provide managed choices to increase on task behavior
26. Allow for break passes when needed
27. Allow calculator when needed

Differentiation for English Language Learners

1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
20. Design projects and assessment for student that require reduced sentence or paragraph composition
21. Give alternative homework or class work assignments suitable to the student's linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:

- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:

1. Encourage independent studies or investigations
2. Encourage creative expression by allowing students to choose how to explore a problem
3. Invite students to explore points of view
4. Varied levels of reading text
5. Enriched hands on center that students can explore independently
6. Higher order thinking tasks and questions
7. Provide leadership opportunities in Math Task groups
8. Allow opportunities to analyze and evaluate materials
9. Allow opportunities for gifted students to interact with other gifted students
10. Avoid providing additional work to students who complete tasks early
11. Encourage social activities
12. Provide opportunities for divergent (many answers) and convergent (best answer) thinking
13. Allow for a variety of acceptable products
14. Involve student in creating scoring guide or rubric
15. Provide instruction in research skills needed to conduct an independent study
16. Provide opportunities for open ended activities outside school
17. Encourage students to use math journal for inquiry
18. Mentorship opportunities
19. Distance learning opportunities
20. Expand opportunity for inquiry

Verona Elementary Schools — 2nd Grade Math

Unit 2: Multiplication and Division	Unit Duration: 8-9 Weeks

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

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.
2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.
2.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.
3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.1
3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?
3.OA.B.5 Apply properties of operations as strategies to multiply and divide.2 Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)

Interdisciplinary Standards (NJSLS):

RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
RI.2.7. Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, 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 linking their explicit comments to the remarks of others. C. Ask for clarification and further explanation as needed about the topics and texts under discussion.
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.
NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Technology Integration (NJSLS 8):

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.
8.1.2.DA.3: Identify and describe patterns in data visualizations.
8.1.2.AP.4: Break down a task into a sequence of steps.

21st Century Skills Integration (NJSLS 9):

CLKS1 Act as a responsible and contributing community member and employee.
CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them..
CLKS9 Work productively in teams while using cultural/global competence.

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.3: Use a variety of types of thinking to solve problems

Transfer Goal:

Students will be able to <u>independently</u> use their learning to implement effective strategies for modeling multiplicative and division thinking for multiples of 2, 3, 4, 5 and 10.

Students will understand that:

- The multiplication symbol is used to represent the operation of adding quantities in equal groups.
- One factor represents the number in each group, and the other factor represents the number of groups.
- Multiplication is commutative
- Sharing division begins with the total number of objects and puts them into a number of groups to find out how many in each group
- Division as grouping begins with the total number of objects and puts them into equal groups of a given amount to find out how many groups to make
- How to build multiplication tables
- Thinking of a related multiplication fact will help them find the product in a division fact
- Multiplication and division can be understood using the part-whole concept

Essential Questions:

- What are some ways you can solve for the total number of items and not count 1 by 1?
- Instead of using repeated addition, what is another way we can write an equation using the multiplication symbol?
- Would you get the same product if you switched the order of the factors? Why?
- How can an array help you solve a multiplication or division problem?
- What are we looking for when we are multiplying?
- What do we start with when we are dividing? What are we looking for?
- How can you relate multiplication and division?

Students will know:

- Multiplication as an operation to find the total amount when we have equal groups
- Multiplication is commutative
- Division as sharing and grouping
- Multiplication tables of 2, 3, 4, 5 and 10
- Patterns in the multiplication tables of 2, 3, 4, 5, and 10
- The commutative property in the multiplication tables of 2, 3, 4, 5, and 10
- The multiplication facts of 2, 3, 4, 5, and 10.
- The correct operation to solve a multiplication or division problem.
- Division facts of with the divisors 2, 3, 4, 5, and 10

Students will be able to:

- Use counters to make arrays to help them multiply
- Use stickers to make array cards for multiplication tables for 2, 3, 4, 5, and 10 to help them with multiplication and division
- Use bar models to help them understand the part-whole concept of multiplication and division
- Use paper plates and counters to help with the consent of division as sharing and grouping
- Create flashcards for multiplication facts for 2, 3, 4, 5, and 10
- Create flashcards for division facts with divisors of 2, 3, 4, 5, and 10
- Use division to find the size of one group given the total and the number of groups
- Use division to find the numbers of groups when given the total and the number in each group
- Use array models to explore the relationship between multiplication and division
- Build and understand the structure of the multiplication tables of 2, 3, 4, 5 and 10
- Look for patterns in the multiplication tables of 2, 3, 4, 5, and 10
- Use a related multiplication sentence to solve division problems without a remainder where the divisor is 2, 3, 4, 5 and 10
- Solve problems involving multiplication and division

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Chapter Tests
Differentiated Chapter Tests

Other Evidence:

Formal:
- Providing written/oral response to the EQs
- Responses to the Do problems or workbook practice

Informal
- Classwork
- Teacher observation of independent and/or group work
- Proper use of subject specific vocabulary

Stage 3: Activities

Primary Activities:

Chapter 6 - Multiplication and Division
Chapter Opener
1. Multiplication - Part 1
2. Multiplication - Part 2
3. Practice A
4. Division - Part 1
5. Division - Part 2
6. Multiplication and Division
7. Practice B

Chapter 7 - Multiplication and Division of 2, 5, and 10
Chapter Opener
1. The Multiplication Table of 5
2. Multiplication Facts of 5
3. Practice A
4. The Multiplication Table of 2
5. Multiplication Facts of 2
6. Practice B
7. The Multiplication Table of 10
8. Dividing by 2
9. Dividing by 5 and 10
10. Practice C
11. Word Problems

Chapter 9 - Multiplication and Division of 3 and 4
Chapter Opener
1. The Multiplication Table of 3
2. Multiplication Facts of 3
3. Dividing by 3
4. Practice A
5. The Multiplication Table of 4
6. Multiplication Facts of 4
7. Dividing by 4
8. Practice B
9. Practice C

Supplemental Activities:

Equal Group Exploration
Multiplication Mania
Array Punch
Fences
The Doorbell Rang
Student Sorts
Division Stories
Hip Hip Array

Hundred Chart Patterns
Catch and Count
Choral Counting
Array Dot Cards
Multiplication Wheels
Five's a Hopping!
Five's a Bopping!
Hopscotch x5
Nim
Hopscotch x2
Multiplication Kaboom
Two's a Hopping!
Two's a Bopping!
Multiply Team Race
Match
Multiplication Squares
Clear the Board Division
Division Kaboom
Leftovers
Five and Ten Hopping!
Five and Ten Bopping!
Snowball Review

Reference Materials

Dimensions Math 2A Teacher's Edition
Dimensions Math 2B Teacher's Edition
Dimensions Math 2A Textbook
Dimensions Math 2B Textbook
Dimensions Math 2A Workbook
Dimensions Math 2B Workbook
Dimensions Math 2A Tests
Dimensions Math 2B Tests
Singapore Math Intensive Practice US 2A
Singapore Math Intensive Practice US 2B
Challenging Word Problems for Primary Mathematics Common Core 2

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1. Preferential Seating
2. Extended time for task completion (Assignments, Assessments, etc..)
3. Provide copy of accurate notes
4. Breaking down and chunking assignments
5. Restating and clarifying instruction
6. Extra book provided to keep at home
7. Organizational assistance (notebook, assignment pad, lab materials, etc..)
8. Adjusting class schedule to alternate instruction (morning/afternoon)
9. Modify test and quizzes
10. Provide manipulative examples
11. Allow for oral follow up
12. Use of Graphic Organizers (charts, visual outlines, etc..)
13. Repetition and clarification of directions
14. Assessments and class work read aloud
15. Provide checklists
16. Movement breaks
17. Visual representation of print version
18. Use of a alarm/fimer to aide with time management, including transitional warning
19. Nonverbal cue for off-task behavior
20. Provide positive reinforcement
21. Hands on learning activities
22. Ask student to restate directions or concepts taught
23. Deliver directions one step at a time, gradually increasing the number of steps delivered

Differentiation for English Language Learners

1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)

Differentiation for Enrichment:

1. Encourage independent studies or investigations
2. Encourage creative expression by allowing students to choose how to explore a problem
3. Invite students to explore points of view
4. Varied levels of reading text
5. Enriched hands on center that students can explore independently
6. Higher order thinking tasks and questions
7. Provide leadership opportunities in Math Task groups
8. Allow opportunities to analyze and evaluate materials
9. Allow opportunities for gifted students to interact with other gifted students
10. Avoid providing additional work to students who complete tasks early
11. Encourage social activities
12. Provide opportunities for divergent (many answers) and convergent (best answer) thinking
13. Allow for a variety of acceptable products
14. Involve student in creating scoring guide or rubric
15. Provide instruction in research skills needed to conduct an independent study
16. Provide opportunities for open ended activities outside school
17. Encourage students to use math journal for inquiry
18. Mentorship opportunities
19. Distance learning opportunities
20. Expand opportunity for inquiry

24. Explain the purpose of the assignment to the student
25. Provide managed choices to increase on task behavior
26. Allow for break passes when needed
27. Allow calculator when needed

16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
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21. Give alternative homework or class work assignments suitable to the student's linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.
28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:

- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Verona Elementary Schools — 2nd Grade Math

Unit 3: Money, Time, Graphs	Unit Duration: 4-5 Weeks

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.MD.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.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems1 using information presented in a bar graph.
3.MD.A.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Interdisciplinary Standards (NJSLS):

RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
RI.2.7. Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, 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 linking their explicit comments to the remarks of others. C. Ask for clarification and further explanation as needed about the topics and texts under discussion.
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.
NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Technology Integration (NJSLS 8):

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.
8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.3: Identify and describe patterns in data visualizations.
8.1.2.DA.4: Make predictions based on data using charts or graphs.
8.1.2.AP.4: Break down a task into a sequence of steps.

21st Century Skills Integration (NJSLS 9):

CLKS1 Act as a responsible and contributing community member and employee.
CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them..
CLKS9 Work productively in teams while using cultural/global competence.

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.3: Use a variety of types of thinking to solve problems
9.4.2.IML.2: Represent data in a visual format to tell a story about the data.

Transfer Goal:

Students will be able to <u>independently</u> use their learning to use their knowledge of counting money, telling time and reading graphs to help in real world situations.

Students will understand that:

- Bills and coins have different values
- The same amount of money can be made in different ways
- You can compare different money amounts
- You can add and subtract money amounts
- You can express money amounts using different notations (dollars, cents, and dollars and cents)
- Elapsed time
- AM and PM is used when telling time
- Graphs are a way to organize information

Essential Questions:

- What is the value of each coin? (quarter, dime, nickel, penny)
- How do we count a group of coins and/or bills?
- How can we compare different amounts of money?
- How is making $1.00 similar to making 100?
- How many minutes are between each number on the clock?
- How many minutes is in one hour?
- How can we figure out how much time has passed between these two times? (give students two different times)

Students will know:

- The value of bills up to $20
- The value of coins (quarters, dimes, nickels and pennies)
- How to read a clock
- Elapsed time
- Am and pm
- Picture Graphs
- Bar Graphs
- Tally Chart
- How to interpret graphs

Students will be able to:

- Count different denominations of bills and coins
- Compare different money amounts
- Add and subtract money
- Express money amounts using dollar notation, cent notation and dollar and cents notation
- Show different ways to make a dollar
- Show different ways to make the same amount of money within $20
- Tell time to the nearest minute
- Relate a time on the clock to the amount of time that has passed between a time on the hour and a time to the minute within that hour
- Determine elapsed time in minutes within 1 hour, and in hours, given the start time and end time
- Tell the end time given the start time and the elapsed time
- Tell time using a.m. and p.m.
- Collect data
- Interpret picture graphs and bar graphs
- Convert a tally chart into a picture graph and/or bar graph

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Chapter Tests
Differentiated Chapter Tests

Other Evidence:

Formal:

- Providing written/oral response to the EQs
- Responses to the Do problems or workbook practice

Informal

- Classwork
- Teacher observation of independent and/or group work
- Proper use of subject specific vocabulary

Stage 3: Activities

Primary Activities:

Chapter 10 - Money
Chapter Opener
1. Making $1
2. Dollars and Cents
3. Making Change
4. Comparing Money
5. Practice A
6. Adding Money
7. Subtracting Money
8. Practice B

Chapter 12 - Time (weave in telling time throughout the school year)
Chapter Opener
1. Telling Time
2. Time Intervals
3. A.M. and P.M.
4. Practice

Chapter 14 - Graphs
Chapter Opener
1. Picture Graphs
2. Bar Graphs
3. Practice

Supplemental Activities:

Trading Up Game
Money Face-Off
Stumper
Dollar Nim
20 Up
20 Out
Shopping Spree
What's a Word Worth?
Memory
Watch
Elapsed Time Hop
Story Time
Clock Nim
How Long?
Math Facts Activity
Scaled Picture Graph
Bar Graph
Math Maze

Reference Materials

Dimensions Math 2B Teacher's Edition
Dimensions Math 2B Textbook
Dimensions Math 2B Workbook
Dimensions Math 2B Tests
Singapore Math Intensive Practice US 2B
Challenging Word Problems for Primary Mathematics Common Core 2

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1. Preferential Seating
2. Extended time for task completion (Assignments, Assessments, etc..)
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6. Extra book provided to keep at home
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8. Adjusting class schedule to alternate instruction (morning/afternoon)
9. Modify test and quizzes
10. Provide manipulative examples
11. Allow for oral follow up
12. Use of Graphic Organizers (charts, visual outlines, etc..)
13. Repetition and clarification of directions
14. Assessments and class work read aloud
15. Provide checklists
16. Movement breaks
17. Visual representation of print version
18. Use of a alarm/fimer to aide with time management, including transitional warning
19. Nonverbal cue for off-task behavior
20. Provide positive reinforcement
21. Hands on learning activities
22. Ask student to restate directions or concepts taught
23. Deliver directions one step at a time, gradually increasing the number of steps delivered
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12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
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15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
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26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
27. Check for understanding consistently - ask students one-on-one what their questions are, monitor their progress on independent work and redirect as needed. They may not understand or be hesitant to verbalize what they do not understand at first, so monitor and give examples.

Differentiation for Enrichment:

1. Encourage independent studies or investigations
2. Encourage creative expression by allowing students to choose how to explore a problem
3. Invite students to explore points of view
4. Varied levels of reading text
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	28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally) **Additional Resources:** • 20 strategies to Support EAL Children • What English Language Learners Wish Teachers Knew - Education Week • A Starting Point: Tips and resources for working with ESL newcomers	

Verona Elementary Schools — 2nd Grade Math

Unit 4: Fractions	Unit Duration: 2-3 Weeks

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

2.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
3.NF.A.1 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.
3.NF.A.3.D Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Interdisciplinary Standards (NJSLS):

RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
RI.2.7. Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
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SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, 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 linking their explicit comments to the remarks of others. C. Ask for clarification and further explanation as needed about the topics and texts under discussion.
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.
NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Technology Integration (NJSLS 8):

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.
8.1.2.DA.3: Identify and describe patterns in data visualizations.
8.1.2.AP.4: Break down a task into a sequence of steps.

21st Century Skills Integration (NJSLS 9):

CLKS1 Act as a responsible and contributing community member and employee.
CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them..
CLKS9 Work productively in teams while using cultural/global competence.

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.3: Use a variety of types of thinking to solve problems

Transfer Goal:

Students will be able to <u>independently</u> use their learning to investigate, identify, compare and order fractions.

Students will understand that:

- Fractions are part of a whole
- You can compare and order fractions

Essential Questions:

- How can we cut this shape into equal parts?
- How many fourths make up 1 whole? How many eighths make 1 whole? (etc.)
- How can you show equal parts of 1 whole?
- Which fraction is the largest? Which fraction is the smallest? How do you know?

Students will know:

- Fractions up to 1/10
- Two fractions that make 1 whole
- How to compare and order fractions to tenths
- Numerator
- Denominator
- Fractional notation

Students will be able to:

- Identify halves and quarters as 2 or 4 equally divided parts of a whole
- Recognize halves and quarters of shapes
- Write halves and quarters using fractional notation
- Recognize and name until fractions up to 1/10
- Write common fractions up to tenths
- Find two fractions that make 1 whole
- Compare and order fractions to tenths
- Find fractions that make 1 whole

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Chapter Tests
Differentiated Chapter Tests

Other Evidence:

Formal:
- Providing written/oral response to the EQs
- Responses to the Do problems or workbook practice

Informal
- Classwork
- Teacher observation of independent and/or group work
- Proper use of subject specific vocabulary

Stage 3: Activities

Primary Activities:

Chapter 11 - Fractions
Chapter Opener
1. Halves and Fourths
2. Writing Unit Fractions
3. Writing Fractions
4. Fractions that Make 1 Whole
5. Comparing and Ordering Fractions

Supplemental Activities:

Pattern Fractions
Quilt Squares
Match
Memory
The Missing Piece
Pattern Block Fractions Exploration
Fraction Battle

6. Practice	More Fraction Quilt Squares

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28. Support use of student's primary language by translating key words in directions, or key vocabulary terms or giving students opportunities to communicate in their primary language (written or orally)

Additional Resources:

- 20 strategies to Support EAL Children
- What English Language Learners Wish Teachers Knew - Education Week
- A Starting Point: Tips and resources for working with ESL newcomers

Differentiation for Enrichment:

1. Encourage independent studies or investigations
2. Encourage creative expression by allowing students to choose how to explore a problem
3. Invite students to explore points of view
4. Varied levels of reading text
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14. Involve student in creating scoring guide or rubric
15. Provide instruction in research skills needed to conduct an independent study
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20. Expand opportunity for inquiry

Verona Elementary Schools — 2nd Grade Math

Unit 5: Shapes	Unit Duration: 2-3 Weeks

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

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.1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Interdisciplinary Standards (NJSLS):

RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
RI.2.7. Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, 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 linking their explicit comments to the remarks of others. C. Ask for clarification and further explanation as needed about the topics and texts under discussion.
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.
NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Technology Integration (NJSLS 8):

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.
8.1.2.DA.3: Identify and describe patterns in data visualizations.
8.1.2.AP.4: Break down a task into a sequence of steps.

21st Century Skills Integration (NJSLS 9):

CLKS1 Act as a responsible and contributing community member and employee.
CLKS4 Demonstrate creativity and innovation.
CLKS5 Utilize critical thinking to make sense of problems and persevere in solving them..
CLKS9 Work productively in teams while using cultural/global competence.

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.3: Use a variety of types of thinking to solve problems

Transfer Goal:

Students will be able to <u>independently</u> use their learning

Students will understand that:

- Two and three dimensional shapes have different attributes
- Shapes can be opened or closed
- Lines can be straight or curved
- New shapes can be made by combining semicircles and quarter-circles

Essential Questions:

- What makes a triangle a triangle?
- What makes a quadrilateral a quadrilateral? A pentagon a pentagon? A hexagon a hexagon?

Students will know:

- Attributes of three dimensional and two dimensional shapes
- Closed shapes
- Corners
- Cubes
- Cuboid
- Edge
- Face
- Hexagon
- Orientation
- Pentagon
- Polygon
- Quadrilateral
- Quarter-circles
- Rotate
- Semicircle
- Sides
- Straight lines and curved lines

Students will be able to:

- Draw straight lines and curved lines
- Identify open and closed shapes
- Identify, describe and categorize polygons by attributes
- Identify semicircles and quarter circles
- Make new shapes by combining semicircles and quarter circles
- Make and complete patterns with two-dimensional shapes according to one or two attributes and explain the patterns
- Identify attributes of three-dimensional shapes

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Chapter Tests
Differentiated Chapter Tests

Other Evidence:

Formal:
- Providing written/oral response to the EQs
- Responses to the Do problems or workbook practice

Informal
- Classwork
- Teacher observation of independent and/or group work
- Proper use of subject specific vocabulary

Stage 3: Activities

Primary Activities:

Chapter 15 - Shapes

Supplemental Activities:

Polygon Walk

Chapter Opener
1. Straight and Curved Sides
2. Polygons
3. Semicircles and Quarter-circles
4. Patterns
5. Solid Shapes
6. Practice

Polygon Pictures
Musical Shapes
Patterns
Connect 4 Solids
Block-it Game

Reference Materials

Dimensions Math 2B Teacher's Edition
Dimensions Math 2B Textbook
Dimensions Math 2B Workbook
Dimensions Math 2B Tests
Singapore Math Intensive Practice US 2B
Challenging Word Problems for Primary Mathematics Common Core

Accommodations and Modifications

Differentiation for Students with IEPs, 504s, and/or Students at Risk of Failure (IEP/504/RF)

1. Preferential Seating
2. Extended time for task completion (Assignments, Assessments, etc..)
3. Provide copy of accurate notes
4. Breaking down and chunking assignments
5. Restating and clarifying instruction
6. Extra book provided to keep at home
7. Organizational assistance (notebook, assignment pad, lab materials, etc..)
8. Adjusting class schedule to alternate instruction (morning/afternoon)
9. Modify test and quizzes
10. Provide manipulative examples
11. Allow for oral follow up
12. Use of Graphic Organizers (charts, visual outlines, etc..)
13. Repetition and clarification of directions
14. Assessments and class work read aloud
15. Provide checklists
16. Movement breaks
17. Visual representation of print version
18. Use of a alarm/fimer to aide with time management, including transitional warning
19. Nonverbal cue for off-task behavior
20. Provide positive reinforcement
21. Hands on learning activities
22. Ask student to restate directions or concepts taught
23. Deliver directions one step at a time, gradually increasing the number of steps delivered
24. Explain the purpose of the assignment to the student
25. Provide managed choices to increase on task behavior
26. Allow for break passes when needed
27. Allow calculator when needed

Differentiation for English Language Learners

1. Provide alternate ways for the student to respond (verbal/pictographic answers instead of written)
2. Substitute a hands-on activity or use of different media in projects for a written activity
3. Provide word banks / word walls
4. Prepare and distribute advance notes
5. Provide model sentence frames and sentence starters for both oral responses and written responses
6. Provide additional time to complete assessments and assignments
7. Model and use gestures to aid in understanding
8. Model tasks by giving one or two examples before releasing students to work independently
9. Present instructions both verbally and visually
10. Simplify written and verbal instructions
11. Allow students to use eDictionaries
12. Avoid slang and idiomatic expressions.
13. Speak clearly and naturally, and try to enunciate words, especially their ending sounds.
14. Provide Sensory Supports (Real-life objects, Manipulatives, Pictures & photographs, Illustrations, Diagrams, & drawings, Magazines & newspapers, Physical activities, Videos & films, Broadcasts, Models & figures)
15. Provide Graphic Supports (Charts, Graphic organizers, Tables, Graphs, Timelines, Number lines)
16. Provide Interactive Supports(Pair or Partner work, Group work, Peer Mentor)
17. Simplify the language, format, and directions of the assessment
18. Accept correct answers on test or worksheets in any written form such as lists, phrases, or using inventive spelling
19. Allow editing and revision before grading
20. Design projects and assessment for student that require reduced sentence or paragraph composition
21. Give alternative homework or class work assignments suitable to the student's linguistic ability for activities and assessments
22. Utilize alternate reading assignments/materials at the student's reading level.
23. Allow for alternate seating for proximity to peer helper or teacher as necessary
24. Assist student in building a picture file of key vocabulary (Pics4Learning, Webster's Visual Dictionary Online, ClipArt Etc, Shahi Visual Dictionary)
25. When showing video use Closed Captioning. Some videos also allow for a slower replay so the speech is not as fast.
26. Provide wait-time sufficient for English language learners who are trying to translate terms while formulating an explanation - Sufficient wait time is often said to be about 7-10 seconds
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Additional Resources:

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Verona Elementary Schools — 2nd Grade Math

Unit 6: Measurement (Length, Weight, Capacity)	Unit Duration: 5-6 Weeks

Stage 1: Desired Results

Established Subject Area Goals (NJSLS):

2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.
2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).1 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Interdisciplinary Standards (NJSLS):

RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
RI.2.4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
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Transfer Goal:

Students will be able to <u>independently</u> use their learning to apply mathematical knowledge to analyze and model mathematical relationships in the context of a situation in order to make decisions, draw conclusions, and solve problems pertaining to measurement.

Students will understand that:

- Objects can be measured in different units of measurement
- Standard units of measurement
- You can use different tools for measuring length
- You can measure weight using different standard units
- You can measure capacity in liters, gallons and quarts

Essential Questions:

- If I wanted to put a bookshelf on my back wall, how would I know what size bookshelf to get?
- Why is it important to use the standard units of measurement?
- How can we tell how heavy or light something is?
- If I have to make juice for our class party, how can I figure out what is the best container to use?
- Which container can hold more water?
- Which container has the greatest capacity? How do you know?

Students will know:

- Standard units of measurement
- Meaning of Centimeters
- Meaning of Meters
- Meaning of Inches
- Meaning of Feet
- Meaning of Yards
- Estimating measurement
- Meaning of Grams
- Meaning of Kilograms
- Meaning of Pounds
- Measure and compare the weight of objects
- Meaning of Volume
- Meaning of Liters
- Meaning of Gallons
- Meaning of Quarts

Students will be able to:

- Investigate length in standard units of measurement (centimeters, meters, inches)
- Measure the length of objects in centimeters, meters, inches, feet
- Estimate length in centimeters, meters, inches, feet
- Use and understand different tools for measuring length
- Understand that grams, kilograms, and pounds are units of weight
- Measure and compare the weight of objects in grams, kilograms and pounds
- Understand the meaning of capacity
- Compare the volume of water in two or more containers by direct and indirect comparison
- Measure capacity in liters, quarts and gallons

Stage 2: Acceptable Evidence

Transfer Task & Unit Assessments:

Chapter Tests
Differentiated Chapter Tests

Other Evidence:

Formal:
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Stage 3: Activities

Primary Activities:

Chapter 4: Length
Chapter Opener
1. Centimeters
2. Estimating Length in Centimeters
3. Meters
4. Estimating Length in Meters
5. Inches
6. Using Rulers
7. Feet
8. Practice

Chapter 5: Weight
Chapter Opener
1. Grams
2. Kilograms
3. Pounds
4. Practice

Chapter 13: Capacity
Chapter Opener
1. Comparing Capacity
2. Units of Capacity
3. Practice

Supplemental Activities:

Scavenger Hunt
Measure Me!
Who is Closest?
Measure Me! - Centimeter Edition
Once Inch Tall
Who is Closest - Inch Edition
Ant Paths
Measure Me! - Foot Edition
How Far?

Sink or Float?
Scavenger Hunt
Shot Put
Capacity Relay

Reference Materials

Dimensions Math 2A Teacher's Edition
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Dimensions Math 2A Workbook
Dimensions Math 2A Tests
Singapore Math Intensive Practice US 2A
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