



Unit Plan

3.8 Putting It All Together

Chester / Littleville Elementary / Grade 3 / Mathematics

[^](#) Week 31 - Week 33 | 4 Curriculum Developers | Last Updated: Mar 19, 2024 by LeBlanc, Deanna[Style Guide](#)

What is the purpose of the unit? What are the major take-aways?

Standards

MA: Mathematics (2017)**MA: Grade 3****Operations & Algebraic Thinking****3.OA Solve problems involving the four operations, and identify and explain patterns in arithmetic.**

- 8. Solve two-step word problems using the four operations for problems posed with whole numbers and having whole number answers. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. [Show Details](#)

Number & Operations in Base Ten**3.NBT Use place value understanding and properties of operations to perform multi-digit arithmetic.** [Show Details](#)

- 2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Number & Operations—Fractions**3.NF Develop understanding of fractions as numbers for fractions with denominators 2, 3, 4, 6, and 8.** [Show Details](#)

- 2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
- 3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
- 1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole (a single unit) is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

Measurement & Data**3.MD Represent and interpret data.**

- 3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. [Show Details](#)

3.MD Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

- 7d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
- 7b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

3.MD Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

- 8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

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Enduring Understandings

- Interconnectedness of Operations**: Students will understand that addition, subtraction, multiplication, and division are not isolated operations but interconnected tools that can be used sequentially to solve complex problems. They will recognize that these operations can be combined in two-step word problems to find solutions to a wide array of real-world scenarios.
- Strategic Problem-Solving**: Students will develop an understanding of the importance of using efficient strategies and algorithms to fluently add and subtract within 1000. They will understand how a deep knowledge of place value and the properties of operations can aid in mental computation and serve as a foundation for effective problem-solving.
- Representation and Reasoning**: Students will understand that equations are a powerful way to represent mathematical situations, with letters symbolizing unknown quantities. They will recognize the importance of using equations to organize their thinking and to make solving two-step word problems more systematic and comprehensible.
- Estimation and Sense-Making**: Students will recognize the significance of estimating and checking the reasonableness of answers. They will understand that rounding and mental math are not just computational shortcuts but critical tools for verifying the plausibility of answers and for making informed decisions based on calculations.
- Conceptualizing Fractions**: Students will realize that fractions are a way to represent quantities less than a whole, and they will understand that fractions can be placed on a number line to show their value relative to whole numbers. This conceptualization helps them see fractions as numbers in their own right, which can be manipulated and understood just like whole numbers.
- Fractional Parts and Wholes**: Students will understand that fractions are a representation of a whole divided into equal parts, where $\frac{1}{b}$ is a single part of that whole and $\frac{a}{b}$ is a collection of those parts. This understanding is crucial for grasping more advanced concepts such as equivalence, addition, subtraction, and comparison of fractions.
- Equivalence and Comparison**: Students will understand that not all fractions are unique in value; some represent the same quantity, which is the notion of equivalence. They will grasp that the size of fractions can vary and that there are logical strategies for comparing them, such as reasoning about the size of their parts (denominators) and the number of those parts (numerators).

Essential Questions

Two-Step Word Problems (Standard 8):

- How can we determine which operations to use when solving a two-step word problem involving whole numbers?
- What strategies can we use to check if our answers to two-step word problems are reasonable?
- How does representing a two-step word problem with an equation help us find the solution?
- Why is it important to estimate and mentally compute when solving two-step word problems, and how can rounding help us with this?

Fluency in Addition and Subtraction (Standard 2):

- What strategies can we use to add and subtract large numbers effectively?
- How does understanding place value help us add and subtract within 1000?
- Why is it important to be fluent with addition and subtraction when solving more complex problems?

Understanding Fractions on the Number Line (Standard 2):

- How can we represent a fraction on a number line, and why is this representation useful?
- In what ways does a number line help us understand the size and relationships of fractions?

Equivalence and Comparison of Fractions (Standard 3 & 1):

- What does it mean for two fractions to be equivalent, and how can we determine if they are?
- How can we use the size of the parts and the number of equal parts to compare two fractions?
- Why is it important to understand the concept of a whole when discussing fractions?
- How can partitioning a whole into equal parts help us understand the concept of a fraction?

Content

In this unit, students revisit major work and fluency goals of the grade, applying their learning from the year.

Skills

Section A Goals

- Understand a fraction as a number and represent fractions on the number line.

Section B Goals

In section A, students reinforce what they learned about fractions, their size, and their location on the number line. In section B, students deepen their understanding of perimeter, area, and scaled graphs by solving problems about measurement and data. Two of the lessons invite students to design a tiny house that meet certain conditions and calculate the cost for furnishing it. Section C enables students to work toward multiplication and division fluency goals through games. In the final section, students review major work of the grade as they create activities in the format of the warm-up routines they have encountered throughout the year (Notice and Wonder, Estimation Exploration, Number Talk, and How Many Do You See?).

The concepts and skills strengthened in this unit prepare students for major work in grade 4: comparing, adding, and subtracting fractions, multiplying and dividing within 1,000, and using the standard algorithm to add and subtract multi-digit numbers within 1 million.

The sections in this unit are standalone sections, not required to be completed in order. Within each section, many lessons can also be completed independently of the ones preceding them. The goal is to offer ample opportunities for students to integrate the knowledge they have gained and to practice skills related to the expected fluencies of the grade.

Throughout the unit

The warm-ups throughout the unit provide an invitation for students to think about the topics addressed within each section.

- Apply concepts of measurement and data to solve problems.

Section C Goals

- Develop fluency with single-digit multiplication facts and their related division facts.

Section D Goals

- Review the major work of the grade by creating and designing instructional routines.

How will you gauge student learning?

Assessments

3.8 End-of-Course Assessment and Resources | Summative | Written Test

[Grade3-8-End-of-Course-Assessment-and-Resources-assessment.pdf](#)

8 State Standards Assessed

How will students learn?

Learning Activities

Differentiated Instruction

Technology Integration

21st Century Skills

Positive Behavior

CASEL

Collaborative for Academic, Social, and Emotional Learning

Resources

Teacher Notes and Reflections
