



Unit Plan

2.4 Addition and Subtraction on the Number Line

Chester / Littleville Elementary / Grade 2 / Mathematics

[Week 15 - Week 19](#) | 4 Curriculum Developers | Last Updated: Apr 20, 2023 by Hyjek, Linda[Style Guide](#)

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

Standards

MA: Mathematics (2017)**MA: Grade 2****Operations & Algebraic Thinking****2.OA Represent and solve problems involving addition and subtraction.**

- 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.

Number & Operations in Base Ten**2.NBT Understand place value.**

- 2. Count within 1000; skip-count by 5s, 10s, and 100s. Identify patterns in skip counting starting at any number.

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

- 5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Measurement & Data**2.MD Relate addition and subtraction to length.**

- 5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
- 6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

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Enduring Understandings

Students learn about the structure of a number line and use it to represent numbers within 100. They also relate addition and subtraction to length and represent the operations on the number line.

Essential Questions

Content

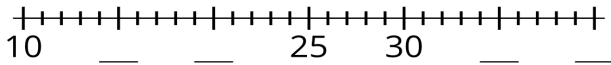
Skills

In this unit, students are introduced to the number line, an essential representation that will be used throughout students' K–12 mathematical experience. They learn to use the number line to represent whole numbers, sums, and differences.

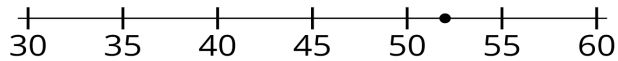
In a previous unit, students learned to measure length with rulers. Here, they see that the tick marks and numbers on the number line are like those on a ruler: both show equally spaced numbers that represent lengths from 0.

Students use this understanding of structure to locate and compare numbers on the number line, as well as to estimate numbers represented by points on the number line.

Locate and label 17 on the number line.



What number could this be? _____



Students then learn conventions for representing addition and subtraction on the number line: using arrows pointing to the right for adding and arrows pointing to the left for subtracting. Students also use the number line to represent addition and subtraction methods discussed in Number Talks, such as counting on, counting back by place, and decomposing a number to get to a ten. The reasoning here deepens students' understanding of the relationship between addition and subtraction.

Throughout the unit

Throughout the unit, students engage in warm-up activities that support student fluency in operations within 100. The Number Talks in this section focus on subtraction using place value strategies, including subtracting tens from tens and ones from ones, and decomposing a ten.

Here is a sampling of Number Talk warm-ups in the unit.

Lesson 4	Lesson 6	Lesson 9	Lesson 11
35–535–1035–1535–25	65–2565–2755–1746–18	20–220–1749–367–64	32–643–851–552–7

Section A Goals

- Represent whole numbers within 100 as lengths from 0 on a number line.
- Understand the structure of the number line.

Section B Goals

- Represent sums and differences on a number line.

In addition to Number Talks, the warm-ups include Choral Counts that have students skip-count by 5 and count back by 10 from any number. Students also engage in True or False routines that support students to think about addition and subtraction strategies and as they represent equations on a number line.

How will you gauge student learning?

Assessments

2.4 End of Unit Assessment | Summative | Written Test

[Grade2-4-End-of-Unit-Assessment-assessment.pdf](#)

3 State Standards Assessed

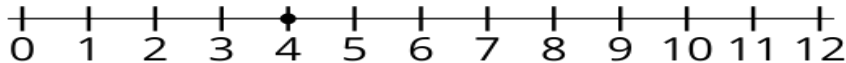
How will students learn?

Learning Activities

Section A:

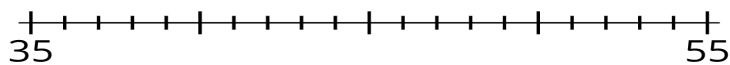
In this section, students begin to use the number line as a tool for understanding numbers and number relationships. They learn that the number line is a visual representation of numbers shown in order from left to right, with equal spacing between each number.

Students see that each number tells the number of length units from 0, just like on the ruler. This means that the numbers to the left are smaller (fewer units away from 0) and those farther to the right are larger (more units away from 0).



Students learn that whole numbers can be represented with tick marks and points on the number line. They then locate, label, and compare numbers on a number line. They also estimate numbers that could be represented by points on a number line.

Locate and label 43 on the number line.

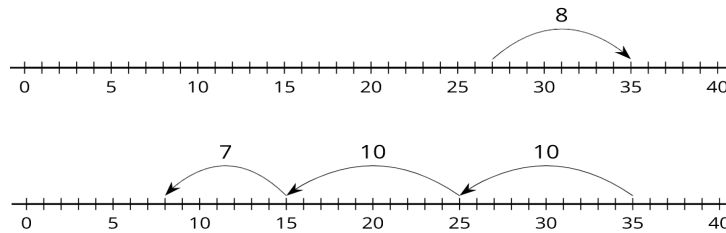


What number could this be? _____

Section B:

In this section, students reason about sums and differences on the number line. They begin by using directional arrows: an arrow pointing right represents addition, and an arrow pointing left represents subtraction. Students write equations that correspond to given number-line representations, as well as represent given equations on the number line.

Later, students revisit the idea of subtraction as an unknown-addend problem and represent the unknown addend with a jump to the right. For example, here are three ways they may reason about $35-27$ on the number line:



As students analyze various representations of a difference on the number line, they consider when certain strategies may be more efficient than others. They also consider reasoning strategies that are based on place value and the properties of operations (for example, adding tens and then ones, or adding ones and then tens). For example, here are two ways to find $53-29$:

At the end of the section, students use the number line to make sense of and solve story problems. They compare this representation with others used in earlier units.

 Differentiated Instruction

Technology Integration

 21st Century Skills


Positive Behavior

CASEL

 Collaborative for Academic, Social, and
Emotional Learning

 Resources

Teacher Notes and Reflections

 Math Unit Four Adjustments/Notes 