



Unit Plan

2.7 Add and Subtract within 1,000

Chester / Littleville Elementary / Grade 2 / Mathematics

[↑](#) Week 29 - Week 32 | 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****Number & Operations in Base Ten****2.NBT Understand place value.**

- 3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 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.
- 1a. 100 can be thought of as a bundle of ten tens – called a “hundred.”
- 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.

- 8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
- 9. Explain why addition and subtraction strategies work, using place value and the properties of operations. [Show Details](#)
- 5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- 6. Add up to four two-digit numbers using strategies based on place value and properties of operations.
- 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.

Measurement & Data**2.MD Represent and interpret data.**

- 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.

© 2019 Massachusetts Department of Elementary and Secondary Education.

Enduring Understandings

- Add and subtract numbers within 1,000 without composition or decomposition, and use strategies based on the relationship between addition and subtraction and the properties of operations.

Essential Questions

- Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.
- Subtract numbers within 1,000 using strategies based on place value understanding, including decomposing a ten or hundred.

Content

In this unit, students add and subtract within 1,000, with and without composing and decomposing a base-ten unit. Previously, students added and subtracted within 100 using methods such as counting on, counting back, and composing or decomposing a ten. Here, they apply the methods they know and their understanding of place value and three-digit numbers to find sums and differences within 1,000.

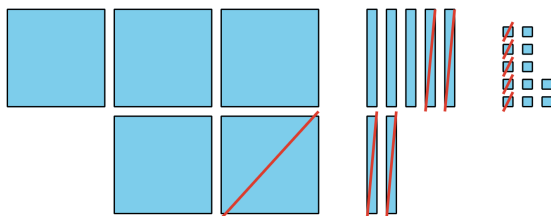
Initially, students add and subtract without composing or decomposing a ten or hundred. Instead, they rely on methods based on the relationship between addition and subtraction and the properties of operations. They make sense of sums and differences using counting sequences, number relationships, and representations (number line, base-ten blocks, base-ten diagrams, and equations).

As the unit progresses, students work with numbers that prompt them to compose and decompose one or more units, eliciting strategies based on place value. When adding and subtracting by place, students first compose or decompose only a ten, then either a ten or a hundred, and finally both a ten and a hundred. They also make sense of and connect different ways to represent place value strategies. For example, students make sense of a written method for subtracting 145 from 582 by connecting it to a base-ten diagram and their experiences with base-ten blocks.

How do Jada's equations match Lin's diagram?

Finish Jada's work to find $582 - 145 = 582 - 145$.

Lin's diagram



Jada's equations

$$500 - 100 =$$

$$\begin{array}{r} 70 \\ \cancel{80} - 40 = \end{array}$$

$$\begin{array}{r} 12 \\ \cancel{1} - 5 = \end{array}$$

Students learn to recognize when composition or decomposition is a useful strategy when adding or subtracting by place. In the later half of the unit, they encounter lessons that encourage them to think flexibly and use strategies that make sense to them based on number relationships, properties of operations, and the relationship between addition and subtraction.

Throughout the unit

Skills

Section A Goals

- Add and subtract numbers within 1,000 without composition or decomposition, and use strategies based on the relationship between addition and subtraction and the properties of operations.

Section B Goals

- Add numbers within 1,000 using strategies based on place value understanding, including composing a ten or hundred.

Section C Goals

- Subtract numbers within 1,000 using strategies based on place value understanding, including decomposing a ten or hundred.

The Number Talk routines in this unit offer opportunities for students to use their understanding of place value, the relationship between addition and subtraction, and the properties of operation to mentally add and subtract within 1,000.

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

lesson 1	lesson 2	lesson 3	lesson 4	lesson 6
586-6586-6	34+2034+20	120+20120+20	586-100586-100	28+228+2
586-8586-8	34+6034+60	120+200120+200	486-20486-20	28+1228+12
434-5434-5	58+3058+30	124+30124+30	457-200457-200	67+367+3
352-4352-4	158+40158+40	124+300124+300	257-30257-30	67+2367+23
528+2528+2	199+23199+23	80¢+20¢	34-934-9	
528+7528+7	198+24198+24	+37¢80¢	434-99434-99	
487+3487+3	297+25297+25	+20¢	367-98367-98	
487+8487+8	395+27395+27	+37¢	635-298635-298	
		80¢+20¢		
		+37¢		
		+42¢80¢		
		+20¢		
		+37¢		
		+42¢		
		75¢+37¢		
		+25¢75¢		
		+37¢		
		+25¢		
		75¢+80¢		
		+25¢		
		+20¢75¢		
		+80¢		
		+25¢		
		+20¢		
lesson 9	lesson 10	lesson 11	lesson 17	

How will you gauge student learning?

Assessments

2.7 Add and Subtract within 1,000 | Summative | Written Test

[Grade2-7-End-of-Unit-Assessment-assessment.pdf](#)

4 State Standards Assessed

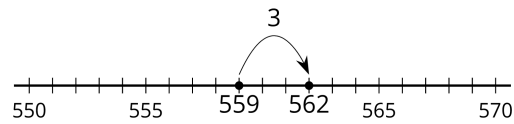
How will students learn?

Learning Activities

Section A:

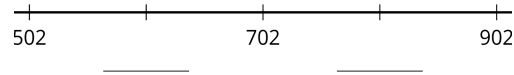
In this section, students add and subtract within 1,000 using methods where they do not explicitly compose or decompose a ten or a hundred.

The number line is used early in this section to help students recognize that when numbers are relatively close, they can count on or count back to find the value of the difference. For example, they may count on from 559 to 562 to find $562 - 559 = 3$.



Students also analyze counting sequences of three-digit numbers that increase or decrease by 10 or 100. They observe patterns in place value before adding and subtracting multiples of 10 or 100.

Fill in the missing numbers. Does the number line show counting on by 10 or by 100?



Students then engage with problems and expressions that encourage them to reason about sums and differences using the relationship between addition and subtraction and the properties of operations.

Diego has 6 tens. Tyler has 8 hundreds, 3 tens, and 6 ones.

What is the value of their blocks together?

Later in the section, students analyze and make connections between methods that use different representations, such as number lines, base-ten diagrams, and equations. They then use methods or representations that make sense to them to add and subtract three-digit numbers.

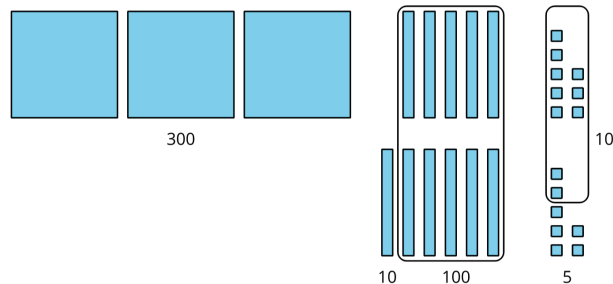
Section B:

In this section, students use strategies based on place value to add three-digit numbers. They learn that it is sometimes necessary to compose a hundred from 10 tens to find the value of such sums.

Students begin with sums that allow them to decide when to make a ten. They then work with larger values in the tens place and determine when to compose a hundred. As the lessons progress, they encounter sums of two- and three-digit numbers that involve composing two units. Throughout the section, students analyze and use representations such as base-ten blocks, base-ten diagrams, expanded form, and other equations to build conceptual understanding and show place value reasoning. They also develop their understanding of the properties of operations as they observe that the order in which they add the units doesn't affect the value of the sum.

What is the same and what is different about how Priya and Lin found $358 + 67$?

Priya's work



$$300 + 100 + 10 + 10 + 5$$

$$300 + 100 + 10 + 10 + 5$$

$$400 + 20 + 5 = 425$$

Lin's work

$$3 \text{ hundreds} + 11 \text{ tens} + 15 \text{ ones}$$

$$11 \text{ tens} = 110$$

$$15 \text{ ones} = 15$$

$$300 + 110 + 15 = 425$$

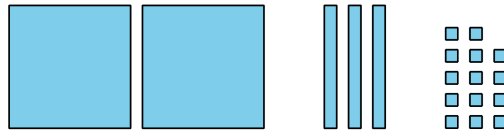
Later in the section, students add within 1,000 using any method they have learned and thinking flexibly about the numbers they are adding.

Section C:

As they have done when adding, students subtract numbers within 1,000 using place value strategies that involve decomposing a ten, a hundred, or both. This work builds on their previous experience of subtracting two-digit numbers by place value and decomposing a ten. Students use base-ten blocks to subtract hundreds from hundreds, tens from tens, and ones from ones, which offers a concrete experience of exchanging a ten for 10 ones or a hundred for 10 tens as needed.

Along the way, they begin to think strategically about how to decompose the minuend when using base-ten blocks or diagrams. They learn that by analyzing the value of the digits in each place, they can initially represent the minuend in a way that would require decomposing fewer units when subtracting by place.

For example, this is a helpful way to represent 244 if we are subtracting a number with more than 4 ones, such as when finding $244 - 67$:



Throughout the section, students compare the steps they use to decompose units and the different ways to represent and record the units being decomposed.

The section ends with students choosing subtraction methods flexibly. They apply their understanding of place value, the relationship between addition and subtraction, and the properties of operations, to analyze number relationships and decide how to find the value of differences within 1,000.

Differentiated Instruction

Technology Integration

21st Century Skills


Positive Behavior

CASEL

Collaborative for Academic, Social, and Emotional Learning

Resources

Teacher Notes and Reflections

 Math Unit Seven Adjustments/Notes 