Gateway Regional School District

Atlas

Unit Plan

2.2 Add and Subtract within 100

Chester / Littleville Elementary / Grade 2 / Mathematics

Week 7 - Week 10 | 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.

- [x] 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 Add and subtract within 20.

- [x] 2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two single-digit numbers and related differences. Show Details

Number & Operations in Base Ten

2.NBT Understand place value.

- [x] 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.

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

Measurement & Data

2.MD Represent and interpret data.

- [x] 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.

Enduring Understandings

Students add and subtract within 100 using strategies based on place value, properties of operations, and the relationship between addition and subtraction. They then use what they know to solve story problems.

Essential Questions

Content

Skills

Section A Goals

Previously, students added and subtracted numbers within 100 using strategies they learned in grade 1, such as counting on and counting back, and with the support of tools such as connecting cubes. In this unit, they add and subtract within 100 using strategies based on place value, the properties of operations, and the relationship between addition and subtraction.

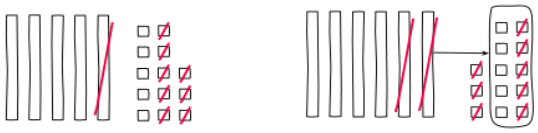
Students begin by using any strategy to find the value of sums and differences that do not involve composing or decomposing a ten. They are then introduced to base-ten blocks as a tool to represent addition and subtraction and move towards strategies that involve composing and decomposing tens.

Students develop their understanding of grouping by place value, and begin to subtract one- and two-digit numbers from two-digit numbers by decomposing a ten as needed. They apply properties of operations and practice reasoning flexibly as they arrange numbers to facilitate addition or subtraction.

For example, students compare Mai and Lin's methods for finding the value of 63−18.

Mai's Way Lin's Way

63−18 63−18



At the end of the unit, students apply their knowledge of addition and subtraction within 100 to solve one- and two-step story problems of all types, with unknowns in all positions. To support them in reasoning about place value when adding and subtracting, students may choose to use connecting cubes, base-ten blocks, tape diagrams, and other representations learned in earlier units and grades.

Throughout the unit

Throughout the unit, the warm-up activities help students to transition from addition and subtraction strategies such as counting on and counting back, towards strategies that focus on understanding the value of the digits. The Number Talks in this unit begin with subtraction, as they learn to subtract 2 two-digit numbers, subtract a multiple of ten, and decompose a ten to subtract. The Number Talks then shift to addition with 3 or more addends, which helps students get ready for two-step story problems.

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

Lesson 4	Lesson 5	Lesson 8	Lesson 14
6−366−366−3066−33	17−717−826−626−8	18+10+1018+20+1038−2048−30	5+9+525+9+525+15+

- Add and subtract within 100 using strategies based on place value and the relationship between addition and subtraction. Problems in this section are limited to the problems like 65 – 23, where decomposing a ten is not required.

Section B Goals

- Subtract within 100 using strategies based on place value, including decomposing a ten, and the properties of operations.

Section C Goals

- Represent and solve one- and two-step problems involving addition and subtraction within 100, including different problem types with unknowns in all positions.

How will you gauge student learning?

Assessments

2.2 End of Unit Assessment | Summative | Written Test

Grade2-2-End-of-Unit-Assessment-assessment.pdf

4 State Standards Assessed

How will students learn?

Learning Activities

Section A:

In this section, students find the value of unknown addends using methods that are based on place value and are introduced to base-ten blocks. They continue to rely on the relationship between addition and subtraction to solve problems involving differences.

Students begin by solving Compare story problems. They use any methods and tools that make sense to them—including diagrams and connecting cubes—to find differences of two-digit numbers.

Lin and Clare used cubes to make trains.
What do you notice? What do you wonder?

Students then analyze the structure of base-ten blocks and use them to find unknown addends (MP7). Unlike connecting cubes, base-ten blocks cannot be pulled apart, which helps emphasize the structure of two-digit numbers in base ten.

To reason about an unknown addend, they may add tens and ones to the known addend until they reach the value of the sum. They may also start with the total amount and subtract tens from tens and ones from ones to reach the known addend. The numbers encountered here do not require students to decompose a ten when they subtract by place value.

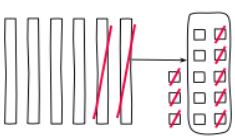
Section B:

In this section, students subtract one- and two-digit numbers from two-digit numbers within 100. To reason about differences of two numbers, they use methods based on place value, base-ten blocks and diagrams, and properties of operations. The numbers here require students to decompose a ten when subtracting by place.

Students also make sense of different representations of subtraction by place, including those that show their peers' reasoning. For example, to find the value of 63–18, students might use base-ten blocks or drawings to represent tens and ones. In this case, they might decompose 1 ten from 63 and exchange it for 10 ones, making 5 tens and 13 ones. From here, some students may first take away 8 ones, and then 1 ten. Others may take away 1 ten, then 8 ones.

When students discuss different approaches and explain why they result in the same value, they deepen their understanding of the properties of operations and place value.

63–18



The reasoning here builds a foundation for students to understand the standard algorithm for subtraction, but students should not be encouraged to use the notation for standard algorithm at this point. Allow them to build conceptual understanding by reasoning with base-ten blocks and drawings and articulating their thinking.

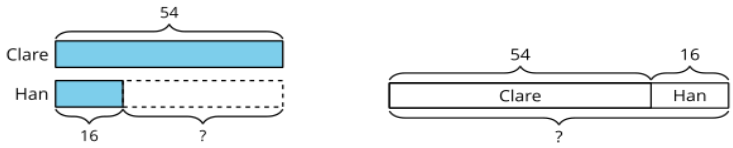
Section C:

This section allows students to apply their knowledge to solve story problems that involve addition and subtraction within 100. The story problems include all types—Add To, Take From, Put Together/Take Apart, and Compare— and have unknowns in all positions.

Previously, students worked with diagrams that represent Compare problems. Throughout this section, students also make sense of diagrams that could represent Put Together/Take Apart story problems.

Clare and Han are playing a game with seeds.
Clare has 54 seeds on her side of the board.
Han has 16 seeds on his side.
How many seeds are on the board in all?

Which diagram matches this story? Explain your match to your partner.



As students relate quantities in context and diagrams that represent them, they practice reasoning quantitatively and abstractly (MP2).

Throughout the section, students are invited to interpret and solve problems in the ways that make sense to them (MP1). Math tools such as connecting cubes and base-ten blocks should be made available to encourage methods based on place value and the properties of operations to solve the problems.

Differentiated Instruction

Technology Integration

21st Century Skills

Positive Behavior

CASEL

Collaborative for Academic, Social, and Emotional Learning

Resources

Teacher Notes and Reflections

Unit 2 is also a very hard unit for students that are not out of concrete thinking mode yet. They will need manipulatives/tools for practice. Continue modeling and supporting student needs. These skills will also spiral throughout the year.

Math Unit Two Adjustments/Notes