



Unit Plan

2.1 Adding, Subtracting, and Working with Data

Chester / Littleville Elementary / Grade 2 / Mathematics

[Week 2 - Week 6](#) | 4 Curriculum Developers | Last Updated: Jun 19, 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.

2.OA Add and subtract within 20.

- 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.

- 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 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 problems using information presented in a bar graph.

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Enduring Understandings

Students represent and solve story problems within 20 through the context of picture and bar graphs that represent categorical data.
Students build toward fluency with addition and subtraction.

Essential Questions

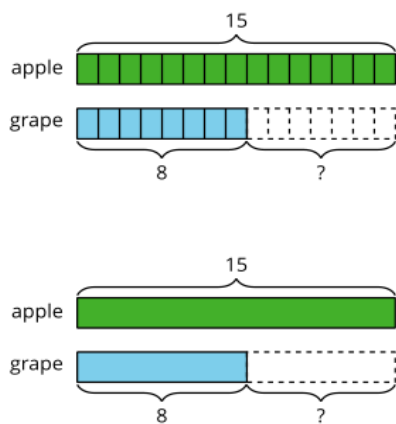
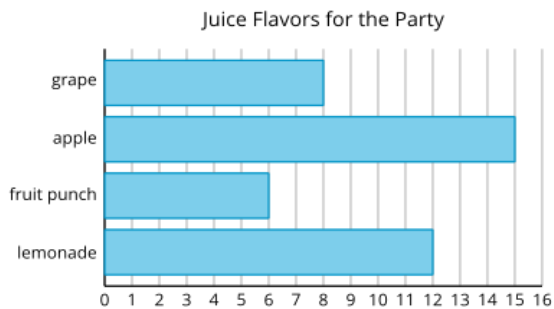
Content

Skills

In this unit, students begin the year-long work to develop fluency with sums and differences within 20, building on concepts of addition and subtraction from grade 1. They learn new ways to represent and solve problems involving addition, subtraction, and categorical data.

In grade 1, students added and subtracted within 20 using strategies based on properties of addition and place value. They developed fluency with sums and differences within 10. Students also gained experience in collecting, organizing, and representing categorical data.

Here, students are introduced to picture graphs and bar graphs as a way to represent categorical data. They ask and answer questions about situations described by the data. The structure of the bar graphs paves the way for a new representation, the tape diagram.



Students learn that tape diagrams can be used to represent and make sense of problems involving the comparison of two quantities. The diagrams also help to deepen students' understanding of the relationship between addition and subtraction.

This opening unit also offers opportunities to introduce mathematical routines and structures for centers, and to develop a shared understanding of what it means to do

Section A Goals

- Build toward fluency with adding within 100.
- Build toward fluency with subtracting within 20.

Section B Goals

- Interpret picture and bar graphs.
- Represent data using picture and bar graphs.
- Solve one- and two-step problems using addition and subtraction within 20.

Section C Goals

- Make sense of and interpret tape diagrams.
- Represent and solve Compare problems with unknowns in all positions within 100.

math and to be a part of a mathematical community.

Throughout the unit

The lessons in the first section and the warm-up activities throughout the unit allow students to build on addition and subtraction within 10 fluency from grade 1 and prepare for the end-of-grade-2 fluency with addition and subtraction within 20. Number Talks are used to help further develop fact fluency and mental math strategies. As the unit progresses, students use strategies to add two-digit and single-digit numbers and two two-digit numbers. In Lessons 10 and 15, students can use mental strategies that involve composition and decomposition of numbers to create an equivalent expression to find the sum.

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

How will you gauge student learning?

Assessments

2.1 End of Unit Assessment | Summative | Written Test

[Grade2-1-End-of-Unit-Assessment-assessment.pdf](#)

3 State Standards Assessed

How will students learn?

Learning Activities

Section A:

This opening section gives teachers opportunities to assess students' fluency with addition and subtraction facts within 10 and how they approach adding and subtracting.

The first several lessons focus on making a ten as a strategy to add and subtract, which helps students gain fluency with facts within 20 and supports the work with larger numbers (such as composing and decomposing numbers as a way to add and subtract). In the last lesson of the section, students use strategies learned in grade 1 to add within 50.



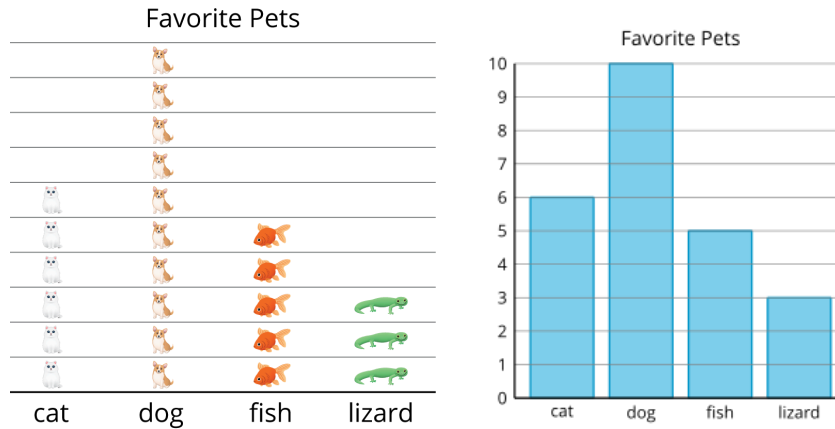
$$10-5=_ \quad 5+=_ \quad 10+=_ \quad 1010-8=_$$

Some activities take place in centers, enabling teachers to also introduce routines and structures while helping students develop mental strategies for adding and subtracting.

Section B:

In this section, students explore situations and problems that involve categorical data and learn new ways to represent such data.

Students begin by representing data about their class in a way that makes sense to them. Then, they are introduced to picture graphs and bar graphs. Students learn the conventions of these graphs as they create them. They discuss the types of questions that can be asked and answered by the graphs, including those that require combining and comparing different categories.



Students have previously represented and reasoned about quantities in story problems. In grade 1, students compared quantities using diagrams with discrete partitions. In the previous section, they reasoned about quantities in bar graphs. Here, students learn to use tape diagrams as another way to make sense of the relationship between two quantities and between addition and subtraction.

Section C:

Students explore Compare story problems with an unknown difference, an unknown larger number, or an unknown smaller number. Tape diagrams help students to visualize these structures and support them in reasoning about strategies to use to solve problems, such as counting on or counting back. The table highlights the different types of problems in this section.

difference unknown	bigger unknown	smaller unknown
Lin counted 28 boats. Diego counted 32 boats. How many more boats did Diego count?	Lin found 28 more shells than Diego. Diego found 32 shells. How many shells did Lin find?	Lin saw 32 starfish. Diego saw 28 fewer starfish than Lin. How many starfish did Diego see?

Students also write equations to reason about questions that ask “how many more?” and “how many less?” They recognize that different equations and diagrams can be used to represent the same difference between two numbers.

21st Century Skills

Positive Behavior

CASEL


Collaborative for Academic, Social, and
Emotional Learning

Resources

Teacher Notes and Reflections

As this is the first unit of the year and students need to learn routine and structure some of the lessons are split into 2 days as we are focusing on procedures. The first unit often seems above incoming second grade skill at the beginning of the year. Some students are able to grasp concepts in section c, and some developmentally are not able to master it YET. But it will spiral back repeatedly throughout the year. Often these skills are not mastered in this unit.

If possible introduce MONEY, TIME AND SHAPE VOCABULARY through games as it only comes up late in year and very little practice time.

 Math Unit One Adjustments/Notes 