

Chapter 3: Addition Strategies

Content Area: **Mathematics**
Course(s): **Math 1**
Time Period: **November**
Length: **15 Days**
Status: **Published**

Unit Summary

In unit 3, children apply their understanding of modeling addition concepts to addition strategies (1.OA.C.6). In the beginning of the unit, children revisit the Commutative Property of Addition for sums to 20 and then apply that to the counting on strategy. The strategies related to doubles facts help children recognize facts they know and apply them to find the sums of facts that are related. The strategies related to making a ten are useful to understand since our number system is based on the number 10. Since children are continually making 10, they will become fluent with addition facts that are sums of 10. The make a ten strategy is connected to the Associative Property of Addition, which means three addends can be grouped in any order. Knowing the facts within ten will benefit children in finding facts within 20, especially if the fact has not yet been memorized. Throughout this unit, students will master the following academic terms: addition, subtraction, add, addends, addition sentence, sum, ten frame, doubles facts, Associative Property of Addition, and the Commutative Property of Addition.

Standards

CCSS.Math.Content.1.OA.A	Represent and solve problems involving addition and subtraction.
CCSS.Math.Content.1.OA.A.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
CCSS.Math.Content.1.OA.B.3	Apply properties of operations as strategies to add and subtract.
CCSS.Math.Practice.MP6	Attend to precision.
CCSS.Math.Content.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.
CCSS.Math.Content.1.OA.C.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).
CCSS.Math.Practice.MP8	Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they

work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

CRP.K-12.CRP2

Apply appropriate academic and technical skills.

CRP.K-12.CRP2.1

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

TECH.8.1.2.A.CS1

Understand and use technology systems.

TECH.8.1.2.A.CS2

Select and use applications effectively and productively.

Student Learning Objectives

Students will learn to...

- Understand and apply the Commutative Property of Addition for sums within 20
- Use the following strategies to find sums within 20: count on 1, 2 or 3, doubles, doubles plus 1 and doubles minus 1, or make a ten
- Use doubles to create equivalent but easier sums
- Use a ten frame to add 10 and an addend less than 10
- Understand and apply the Associative Property or Commutative Property of Addition to add three addends
- Solve adding to and putting together situations using the strategy draw a picture

Essential Questions

- How do we solve addition problems that include more than two numbers?
- What happens if you change the order of the addends when you add?
- What strategies can you use to solve addition fact problems?

Enduring Understandings

Students will understand that...

- In addition we combine quantities in any order to find the sum.
- The use of pictures, numbers, words, and mathematical symbols helps to model and communicate thinking.
- There are many strategies to use when solving addition problems.

Application

Students will be able to independently use their learning to...

- solve addition problems using the addition strategies counting on
- adding doubles and doubles plus and minus 1

- adding 10, and make a ten to add.

Skills

Students will be skilled at...

- Understand and apply the Commutative Property of Addition for sums within 20
- Use count on 1,2, or 3 as a strategy to find sums within 20
- Use doubles as a strategy to solve addition facts with sums within 20
- Use doubles to create equivalent but easier sums
- Use doubles plus 1 and doubles minus 1 as strategies to find sums within 20
- Use a ten frame to add 10 and an addend less than 10
- Use make a ten as a strategy to find sums within 20
- Use numbers to show how to use the make a ten strategy to add
- Use the Associative Property of Addition to add three addends
- Understand and apply the Associative Property or the Commutative Property of Addition to add three addends
- Solve adding to and putting together situations using the strategy "draw a picture"