InsightMath California

Building Place-Value Strategies

Family Guide | Grade 1 | Unit 9

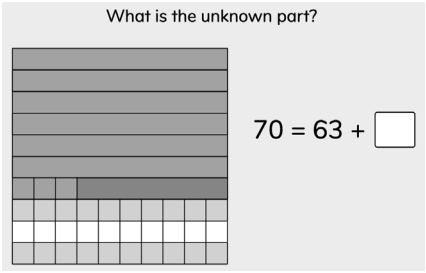
Your student is exploring how applying place value understanding helps to add and subtract efficiently and use estimation to determine reasonableness.

Key Math Ideas

In previous units, students explored strategies for addition and subtraction of numbers up to 20 and explored place value understanding to know that the value of a digit depends on where it is in a number. In this unit, they combine their addition and subtraction work with their knowledge of place value to be able to add and subtract numbers within 100. Adding and subtracting greater numbers requires deeper place-value understanding to find and use efficient strategies. In this unit students explore and compare strategies for adding and subtracting two-digit numbers with one-digit numbers (i.e. 53 + 8) and two-digit numbers with multiples of 10 (i.e. 53 + 20).

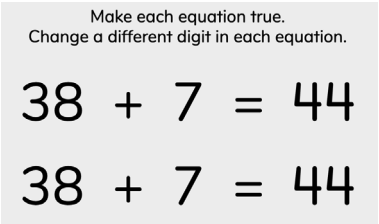
→ In the first half of the unit, your student will learn to

- describe patterns they notice when adding (or subtracting) a one-digit number and multiples of 10 to a given two-digit number;
- add or subtract multiples of 10 by using the following strategies:
  - first adding the tens, then adding the ones, and finally combining the tens and ones, such as solving 54 + 20 by first adding the tens (50 + 20 = 70), then adding the ones (4 + 0 = 4), and finally combining (70 + 4 = 74)
  - counting on or back by 10s, such as solving 54 + 20 by counting by 10s (54 → 64 → 74)
  - adding or subtracting tens, as is shown in the example of 68 – 20, which is solved by 68 – 10 – 10
- find the missing number in an equation involving adding and subtracting a two-digit number with a one-digit number, such as 60 + ? = 68.



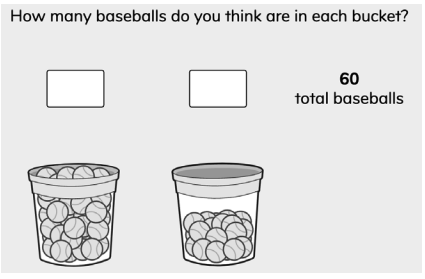
→ In the second half of the unit, your student will learn to

- represent numbers in different, but equivalent, ways such as saying that 4 tens and 13 ones is equivalent to 5 tens and 3 ones;
- use place-value understanding to add one-digit and two-digit numbers that cross a new ten, such as 58 + 4 = 62 in which the tens place changes from 5 tens to 6 tens by adding 4 ones;
- use place-value understanding to make and revise estimates;
- determine if equations are true or false and use place-value understanding to make false equations true.



Helpful Hint

Estimation is an important part of solving problems in math. Asking students "about how many?" before adding or subtracting helps develop an understanding of numbers and their relationships and helps students consider if an answer makes sense. Find opportunities to ask students to estimate in given visual addition or subtraction situations or estimate how many are in each group when given the total (as shown in the problem to the right).



Tips for Supporting Your Student at Home

Questions to Ask Your Student

At the beginning of the unit:

- Did you add by counting on by 10? Why or why not?
- Did you subtract by counting back by 10? Why or why not?
- Did you add the tens and ones separately? Why or why not?
- Did you solve by adding numbers in the same order or a different order than the equation? Why?

→ Later in the unit:

- How can you make a ten to help you solve?
- What number can you add to the number on the left side of the equal sign to make it equivalent to the number on the right side? (Hint: Try the same question with subtraction.)
- Why do you think the equation is true or false?
- Did you need to change a ones digit or tens digit to make the equation true? How did you know?

If...	Try...
your student has difficulty with problems where adding makes a new ten, such as 58 + 4 = 62...	providing your student with opportunities to determining how many more are needed to get from a number to the next multiple of 10. For example, ask your student "What do you need to add to 58 to make a new ten?" and helping them recognize that they can add 58 and 4 by adding 58 + 2 to get to 60 (a new ten) and then adding 2 more (resulting in 62).

Student Strengths Spotlight

We try our best.	When trying to add (or subtract) one-digit numbers and multiples of 10s to given numbers, students try their best to make sure they add or subtract the number correctly.
We talk about our ideas.	When making estimates, students explain and justify their reasoning for the result.

Try This Together!

- **Mental Math.** You and your student can use mental math to add a two-digit number and a multiple of 10 and then discuss the strategy your student used and why. For example, you can ask your student to add 32 and 20. You and your student can then discuss the strategy of counting on by 10s (32 + 10 + 10 = 52) or the strategy of adding tens and ones separately (30 + 20 = 50, 2 + 0 = 2, 50 + 2 = 52).
- **Would You Rather?** Pose some "Would You Rather?" questions to your student using addition and subtraction problems involving adding a multiple of 10 to a two-digit number. For example, ask them "Would you rather 35 + 20 dollars or 65 – 30 dollars?" Have your student estimate the answer first, then find the actual answer and explain their strategy.