LESSON 2

Number and Operations in Base Ten

Adding and Subtracting

Learning how to add and subtract numbers up to four digits is an important skill both in mathematics and in everyday life. Addition and subtraction require students to be able to accurately represent numbers and understand the value of each. In this lesson, students will learn the fundamentals of adding and subtracting numbers up to four digits with and without regrouping.

Objective

Add and subtract within 1,000.

Common Core State Standards

- **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Try It! *Perform the Try It! activity on the next page.*

Talk About It

Discuss the Try It! activity.

- Write *289* and *319* on the board. **Ask:** *How can you write these numbers as an addition problem?* Help students line up the numbers so that they are ready to be added. Emphasize the importance of aligning place-value columns. Then add the numbers together as a class.
- **Say:** *Sometimes when we add numbers we find that we need to regroup.* **Ask:** *How do you know when you need to regroup? Which numbers did you need to regroup to solve this problem? How did you do it? How did you show regrouping using the blocks?*
- As a class, write the problem *608 – 95*, lining up the place-value columns correctly. **Ask:** *How did you regroup numbers to solve this problem? How is regrouping for subtraction different from regrouping for addition?*

Solve It

With students, reread the problem. Have students write two sentences telling the total number of pages read by Peggy and Rahul and how they used addition and subtraction with regrouping to find the answer.

More Ideas

For other ways to teach about adding and subtracting—

- Have students put Centimeter Cubes in a paper bag and then draw out two handfuls. Students should count each handful of cubes separately and then add the two numbers together.
- Have students work in pairs to challenge each other to subtract two- and three-digit numbers. Each student makes up a subtraction problem. Then students use Base Ten Blocks to solve each other's subtraction problems.

Formative Assessment

Have students try the following problem.

Circle the correct answer.

$$\begin{array}{r} 519 \\ +\ 411 \\ \hline \end{array}$$

A. 920 **B.** 928 **C.** 930 **D.** 938

Try It! 30 minutes | Groups of 4

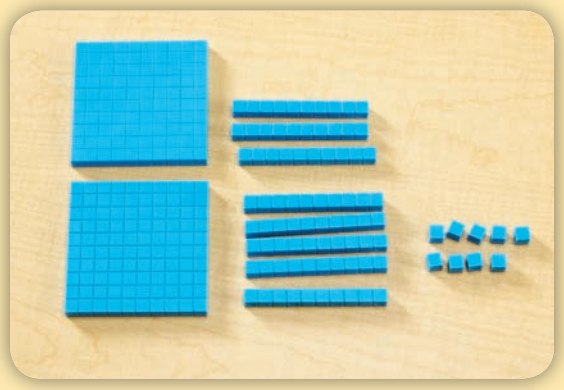
Here is a problem about adding and subtracting.

Claire, Tim, Peggy, and Rahul keep track of the number of pages they read each month. Claire read 289 pages. Tim read 319 pages. Claire and Tim added their pages together to see how much they read altogether. Peggy and Rahul read 95 fewer pages. How many pages did Peggy and Rahul read?

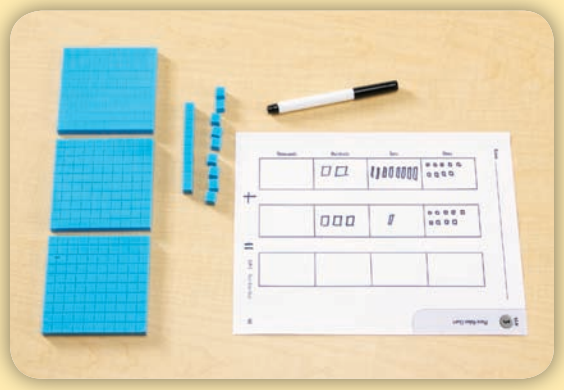
Introduce the problem. Then have students do the activity to solve the problem. Distribute Base Ten Blocks, charts, and pencils to students.

Materials

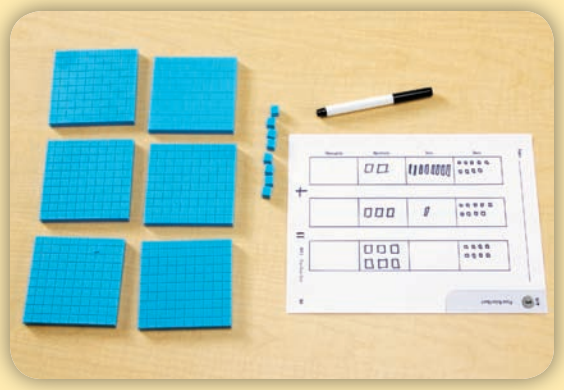
- Base Ten Blocks (10 flats, 10 rods, and 20 units per group)
- Place-Value Chart (BLM 3; 2 per student)
- pencils (1 per student)



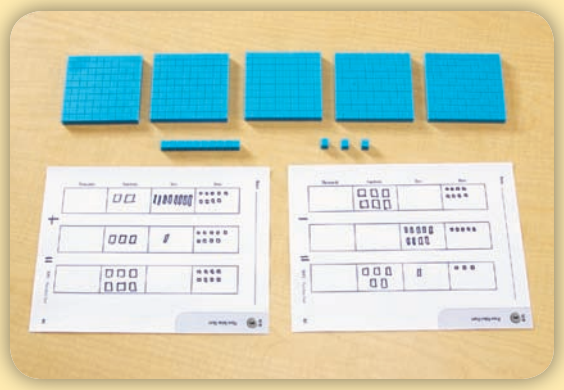
1. Say: *We are going to add together 289 and 319. First model 289 with blocks. Then draw the blocks you used on the chart and draw a plus sign below them.* Have students set the blocks they used to the side.



2. Say: *Now we will use new blocks to model 319.* Have students model the number and then draw the blocks they used in the second row on the chart. Students should draw an equal sign below the second addend.



3. Say: *Now we will put the blocks together to help us add.* Explain to students that they will need to regroup to solve the problem by exchanging units for rods and rods for flats. Then have them draw the blocks that show the sum (608) on their charts.



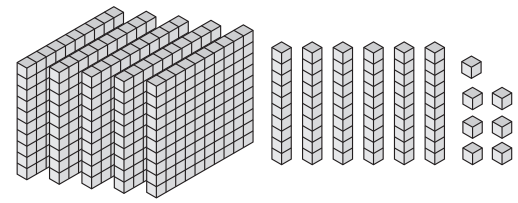
4. Say: *Transfer your sum to the second chart and subtract 95 from 608.* Assist students in exchanging blocks to regroup.

Answer Key

Use Base Ten Blocks to build each number. Find the sum or difference.

(Check students' work.)

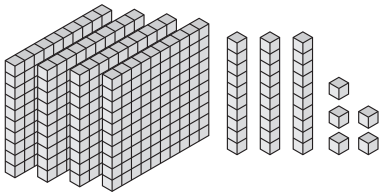
1.



\+ _____

Sum: 921

2.



– _____

Difference: 83

Build each problem using Base Ten Blocks. Then sketch the model. Find the sum or difference. Name any regrouping needed.

(Check students' models.)

3. 628
\+ 259

887

4. 463
– 278

185

Find each sum or difference.

5. 356 + 288 = 644

6. 235 – 154 = 81

7. 416 + 378 = 794

8. 815 – 421 = 394

9. 81 + 425 = 506

10. 990 – 386 = 604

Answer Key

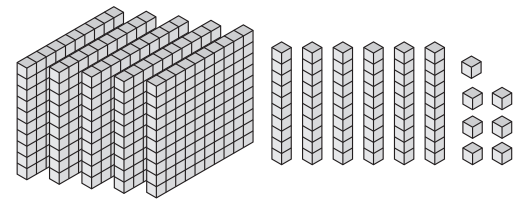
Challenge! Explain why when adding or subtracting two numbers, you work from right to left. Draw a picture to help.

Challenge: (Sample) You need to decide when to regroup. When adding, regrouping for a place value adds one to the place value to the left. When subtracting, if there is not enough in a place value, you have to look to the place value to the left to regroup.

Name _____

Use Base Ten Blocks to build each number. Find the sum or difference.

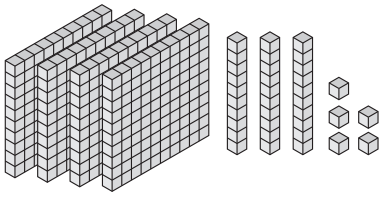
1.



\+ _____

Sum: _____

2.



– _____

Difference: _____

Build each problem using Base Ten Blocks. Then sketch the model. Find the sum or difference. Name any regrouping needed.

3. 628
+ 259

_____

4. 463
– 278

_____

Find each sum or difference.

5. 356 + 288 = _____

6. 235 – 154 = _____

7. 416 + 378 = _____

8. 815 – 421 = _____

9. 81 + 425 = _____

10. 990 – 386 = _____

Name _____

Challenge! Explain why when adding or subtracting two numbers, you work from right to left. Draw a picture to help.

BLM 3

Place-Value Chart

Name _____