

Rigor

Task Handout, Grade 2

“A social justice priority in mathematics education is to openly challenge deficit thinking and the institutional tools and practices that perpetuate static views about children and their mathematics competencies. Eliminating the deficit discourse by focusing on learning rather than labels is a key step toward a more just and equitable mathematics education.” –*National Council of Supervisors of Mathematics and TODOS: Mathematics for All*

Conceptual Understanding Task #1

Materials

- Whiteboard or chart paper and markers
- Empty number line or magnetic cubes lined up on the whiteboard, alternating colors every 5 (see solution)
- List of expressions ready to write up on the board:
 - a. $4+10$
 - b. $4+12$
 - c. $4+22$
 - d. $8+20$
 - e. $8+29$

Actions

- Write the expression on the board or chart paper. Start with $4+10$.
- Ask students to describe their strategy for solving the problem.
- Choose one or more students to explain their strategy to the class. Represent each strategy on the board using the number line or magnetic cubes (see solution).
- Once the student's strategy is understood by the class, continue with the next sum.

Conceptual Understanding Task #2

Some students are working with base-ten blocks.

- a. Nina has 3 hundreds, 8 tens, and 23 ones. How many ones would this be?
- b. Lamar wants to make the number 261. He has plenty of hundreds blocks and ones blocks to work with, but only 4 tens blocks. His friend Jose said,

You can still make 261 with the blocks you have.

Explain how he can.

- c. Find at least three different ways to make 124 using hundreds, tens and ones.

Conceptual Understanding Task #3

Peyton said, “I can solve $47 + 65$ ” and he showed this strategy.

$$47 + 65 = 100 + 12 = 112$$

Presley said, “That doesn’t make sense. Explain why that works.”

- a. Draw a diagram to show Peyton’s thinking.
- b. Explain Peyton’s strategy and why it works.

Procedural Skills and Fluency Task #1

Materials

- Number cards labeled 1-10 (attached as a PDF)

0	1	2
3	4	5
6	7	8
9	10	

Actions

- Begin by playing the game as a whole class to demonstrate the rules and for students to illustrate the range of possible strategies.
- Have a student pick 5 number cards from the cards labeled 1 through 10. Then, have another student pick a “Target Number” between 10 through 20. Students must add and/or subtract 2 or more of the 5 number cards to arrive at the “target” number.
- As students present the different number combinations for the “target” number, write their expressions on the board and have them explain how they were able to mentally come up with the solution.
- As students explain their reasoning, name the strategies they used. For example, look for students making fives (e.g. $6 + 8 = 5 + 1 + 5 + 3 = 10 + 4 = 14$) and tens ($9 + 8 = 10 + 7$), and using known facts (e.g. $8 + 8$ is 16 so $8 + 7$ is one less than 16) to encourage flexible thinking about the relationship among the facts.
- When students understand how the game works, they can play in pairs, checking each other's solutions.

Procedural Skills and Fluency Task #2

Subtraction Patterns

1.	$10 - 5 =$	
2.	$20 - 5 =$	
3.	$30 - 5 =$	
4.	$10 - 2 =$	
5.	$20 - 2 =$	
6.	$30 - 2 =$	
7.	$11 - 2 =$	
8.	$21 - 2 =$	
9.	$31 - 2 =$	
10.	$10 - 8 =$	
11.	$11 - 8 =$	
12.	$21 - 8 =$	
13.	$31 - 8 =$	
14.	$14 - 5 =$	
15.	$24 - 5 =$	
16.	$34 - 5 =$	
17.	$15 - 6 =$	
18.	$25 - 6 =$	
19.	$35 - 6 =$	
20.	$10 - 7 =$	
21.	$20 - 8 =$	
22.	$30 - 9 =$	

23.	$14 - 6 =$	
24.	$24 - 6 =$	
25.	$34 - 6 =$	
26.	$15 - 7 =$	
27.	$25 - 7 =$	
28.	$35 - 7 =$	
29.	$11 - 4 =$	
30.	$21 - 4 =$	
31.	$31 - 4 =$	
32.	$12 - 6 =$	
33.	$22 - 6 =$	
34.	$32 - 6 =$	
35.	$21 - 6 =$	
36.	$31 - 6 =$	
37.	$12 - 8 =$	
38.	$32 - 8 =$	
39.	$21 - 8 =$	
40.	$31 - 8 =$	
41.	$28 - 9 =$	
42.	$27 - 8 =$	
43.	$38 - 9 =$	
44.	$37 - 8 =$	

Procedural Skills and Fluency Task #3

1. Arrange the following numbers from least to greatest:

476

647

74

674

467

2. Arrange the following numbers from greatest to least:

326

362

63

623

632

Application Task #1

Terrell put 19 stamps in his book on Monday. On Tuesday, he put in 32 stamps.

- a. How many stamps did Terrell put in his book on Monday and Tuesday?
- b. If Terrell's book holds 90 stamps, how many more stamps does he need to fill his book?

Application Task #2

Presley jumped 36 cm on her first jump in the high jump competition. On her second jump, she jumped 45 cm.

- a. How many total cm did Presley jump?
- b. How many fewer cm did Presley jump on her first jump than her second jump?
- c. Logan also jumped twice. The total of Logan's two jumps was 95 cm. How many more total cm did Logan jump than Presley?

Application Task #3

The picture shows islands connected by bridges. To cross a bridge, you must pay a toll in coins. If you start on the island marked in blue with 100 coins, how can you make it to the island marked in red?

