CODE: 166

Background

Imagine you are teaching a math lesson to a class of 16 second grade students. The purpose of this lesson is to examine the ways properties of operations can be used to add numbers.

You have asked the students to work with a partner to solve the problem 27 + 23 using any method that works best for them. The partners have completed their work. Now you plan to select 3 individual students to present their work to the class.

Look at the strategies below and the descriptions of the students. Then choose which three students you would like to have present.

The Problem

27 + 23

Learning Goal

Your goal is for the students to be able to understand how properties of operation can be used to add numbers.

- You want the students to understand that two numbers can be added in any order (commutative property).
  - Example: 3 + 4 = 4 + 3
- You also want the students to understand that 3 numbers can be regrouped and added in any order (associative property).
  - Example: 9 + (1 + 7) = (9 + 1) + 7

2nd Grade Student Descriptions

Grace (she/her)

Grace is an Asian girl who speaks English as her first language. She has an IEP for dyslexia. She does not receive free or reduced lunch. She has a history of low success and average participation during math lessons. She also plays basketball.

Jada (she/her)

Jada is a Black girl who speaks English as her first language. She has no identified disabilities, and she does not receive free or reduced lunch. She has a history of high success and high participation during math lessons. She also plays on a softball team.

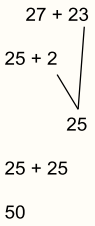
Camille (she/her)

Camille is a white girl who speaks French as her first language. She is an EL student who speaks English at an advanced level. She has no identified disabilities, and she does not receive free or reduced lunch. She has a history of high success and high participation during math lessons. She also does karate.

Alejandro (he/him)

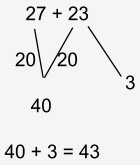
Alejandro is a Latino boy who speaks Spanish as his first language. He is an EL student who speaks English at a beginner level. He has no identified disabilities. He receives free or reduced lunch. He has a history of low success and low participation during math lessons. He also loves to play Minecraft.

Strategy A



- I broke the 27 into 25 and 2.
- Then I added the 2 and 23 to make 25.
- Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents.

Strategy B



40 + 3 = 43

- First I added 20 and 20 to get 40.
- Then I added 3 more to get 43.

Ava (she/her)

Ava is a white girl who speaks English as her first language. She has no identified disabilities. She receives free or reduced lunch. She has a history of low success and low participation during math lessons. She also loves gardening.

Valentina (she/her)

Valentina is a Latina girl who speaks English as her first language. She has an IEP for speech impairment (stuttering). She does not receive free or reduced lunch. She has a history of average success and low participation during math lessons. She also enjoys spending time in nature.

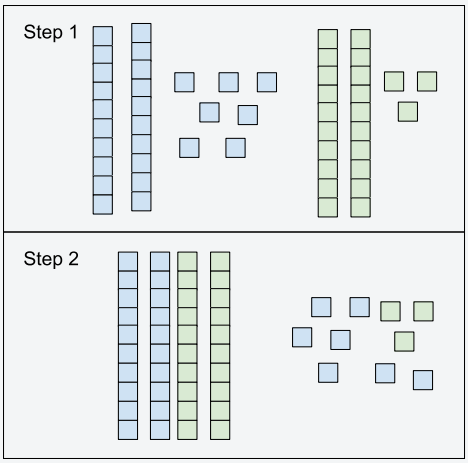
CJ (they/them)

CJ is a gender fluid white child who speaks English as their first language. They have no identified disabilities, and they do not receive free or reduced lunch. They have a history of high success and average participation during math lessons. They also love to draw and paint.

Carter (he/him)

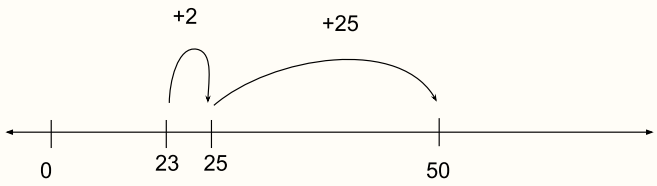
Carter is a Black boy who speaks English as his first language. He has no identified disabilities, and he receives free or reduced lunch. He has a history of average success and little to no participation during math lessons. He also loves to cook and bake.

Strategy C



1. I made 27 and 23 with the blocks.
2. I combined the tens together. Then I combined the ones. That's 4 tens, which is 40. Plus 10 ones, which is 50.

Strategy D



- I started at 23.
- Then I took 2 from the 27 to make a jump of 2.
- That makes 25.
- Then I only needed to add 25 more, so I made another jump and got 50.

Liam (he/him)	Mateo (he/him)	Jackie (she/they)	Adriel (he/him)
Liam is a white boy who speaks English as his first language. He has no identified disabilities, and he does not receive free or reduced lunch. He has a history of average success and average participation during math lessons. He also loves comic books.	Mateo is a Latino boy who speaks Spanish as his first language. He is an EL student who speaks English at an intermediate level. He has no identified disabilities. He receives free or reduced lunch. He has a history of high success and average participation during math lessons. He also likes to play the guitar.	Jackie is a white transgender girl who speaks English as her first language. She has no identified disabilities. She receives free or reduced lunch. She has a history of average success and low participation during math lessons. She also loves animals.	Adriel is an Indigenous boy who speaks English as his first language. He has no identified disabilities, and he receives free or reduced lunch. He has a history of average success and low participation during math lessons. He also loves to play soccer.

Strategy E

23 + 27

23 + (2 + 25)

(23 + 2) = 25

- I made it 23 + 27 because that's easier for me to think about.
- Then I broke the 27 into 2 and 25.
- Then I combined the 2 with the 23, and I got 25.

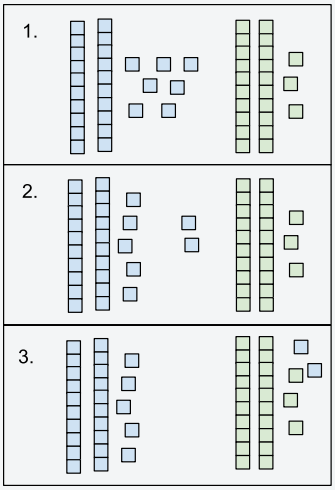
Strategy F

$$\begin{array}{r} {\scriptstyle 1} \\ 27 \\ +\ 23 \\ \hline 50 \end{array}$$

- First, I added 7 and 3 to get 10. I put a zero under the 7.
- Then I put the 1 up above the 2. Last I added 1 + 2 + 2 to get 50.

Angel (she/her)	Daniela (she/her)	Mason (he/him)	Oliver (he/him)
Angel is a Black girl who speaks English as her first language. She has no identified disabilities, and she does not receive free or reduced lunch. She has a history of low success and low participation during math lessons. She also enjoys making origami.	Daniela is a Latina girl who speaks English as her first language. She has no identified disabilities, and she does not receive free or reduced lunch. She has a history of average success and low participation during math lessons. She also loves to dance.	Mason is a white boy who speaks English as his first language. He is on an IEP for severe ADHD. He receives free or reduced lunch. He has a history of high success and low participation during math lessons. He also enjoys singing.	Oliver is a white boy who speaks English as his first language. He has no identified disabilities, and he does not receive free or reduced lunch. He has a history of high success and high participation during math lessons. He also enjoys riding his bike.

Strategy G



1. I made 27 and 23 with the blocks.
2. I pulled 2 apart from the 27 to make 25.
3. I put the 2 with the 23 to make 25. That makes 25 + 25 which is 50.

Strategy H

27 + 23

20 + 20 = 40

7 + 3 = 10

40 + 10 = 50

- First I added 20 and 20 to get 40.
- Then I added 7 and 3 to get 10.
- Then I added 40 and 10 to get 50.