**CODE: 83** 

# **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** Liam (he/him) Valentina (she/her) Jackie (she/they) Alejandro (he/him) Jackie is a white transgender Liam is a white boy who Valentina is a Latina girl who Alejandro is a Latino boy who speaks English as his first speaks English as her first girl who speaks English as speaks Spanish as his first language. He has no language. She has an IEP for her first language. She has no language. He is an EL student identified disabilities, and he speech impairment identified disabilities. She who speaks English at a does not receive free or (stuttering). She does not receives free or reduced beginner level. He has no receive free or reduced lunch. reduced lunch. He has a lunch. She has a history of identified disabilities. He history of average success She has a history of average average success and low receives free or reduced and average participation success and low participation participation during math lunch. He has a history of low during math lessons. He also during math lessons. She also lessons. She also loves success and low participation during math lessons. He also loves comic books. enjoys spending time in animals. nature. loves to play Minecraft. Strategy A Strategy B • I broke the 27 into 25 and 2. • First I added 20 and 20 to get 40. • Then I added the 2 and 23 to make 25. Then I added 3 more to get 43. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 40 + 3 = 4325 + 2550 CJ (they/them) Carter (he/him) Daniela (she/her) Jada (she/her) CJ is a gender fluid white Carter is a Black boy who Daniela is a Latina girl who Jada is a Black girl who child who speaks English as speaks English as his first speaks English as her first speaks English as her first their first language. They have language. He has no language. She has no language. She has no no identified disabilities, and identified disabilities, and he identified disabilities, and she identified disabilities, and she they do not receive free or receives free or reduced does not receive free or does not receive free or reduced lunch. They have a lunch. He has a history of reduced lunch. She has a reduced lunch. She has a history of high success and average success and little to history of average success history of high success and average participation during no participation during math and low participation during high participation during math math lessons. They also love lessons. He also loves to cook math lessons. She also loves lessons. She also plays on a to draw and paint. to dance. softball team. Strategy C Strategy D Step 1 1. I made 27 and 23 +2 +25 with the blocks. 2. I combined the tens together. Then I combined the ones. That's 4 tens, which is 40. Plus 10 ones, 23 50 which is 50. • I started at 23. Step 2 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.

#### Camille (she/her) Mateo (he/him) Angel (she/her) Mason (he/him) Camille is a white girl who Angel is a Black girl who Mason is a white boy who Mateo is a Latino boy who speaks French as her first speaks English as her first speaks English as his first speaks Spanish as his first language. He is on an IEP for language. She is an EL language. She has no language. He is an EL student severe ADHD. He receives student who speaks English identified disabilities, and she who speaks English at an at an advanced level. She has does not receive free or free or reduced lunch. He has intermediate level. He has no no identified disabilities, and reduced lunch. She has a a history of high success and identified disabilities. He she does not receive free or history of low success and low low participation during math receives free or reduced lunch. He has a history of high reduced lunch. She has a participation during math lessons. He also eniovs history of high success and lessons. She also enjoys success and average singing. high participation during math making origami. participation during math lessons. She also does lessons. He also likes to play karate. Strategy E Strategy F First, I added 7 and 3 27 to get 10. I put a zero 23 + 27+ 23 under the 7. I made it 23 + 27 because that's easier for 50 • Then I put the 1 up me to think about. 23 + (2 + 25)Then I broke the 27 into 2 and 25. above the 2. Last I (23 + 2) = 25Then I combined the 2 with the 23, and I got added 1 + 2 + 2 to get Ava (she/her) Oliver (he/him) Adriel (he/him) Grace (she/her) Oliver is a white boy who Adriel is an Indigenous boy Ava is a white girl who speaks Grace is an Asian girl who speaks English as his first who speaks English as his English as her first language. speaks English as her first language. He has no first language. He has no She has no identified language. She has an IEP for disabilities. She receives free dyslexia. She does not identified disabilities, and he identified disabilities, and he does not receive free or receives free or reduced or reduced lunch. She has a receive free or reduced lunch. reduced lunch. He has a history of low success and low. She has a history of low lunch. He has a history of history of high success and average success and low participation during math success and average lessons. She also loves high participation during math participation during math participation during math gardening. lessons. She also plays lessons. He also enjoys riding lessons. He also loves to play soccer. his bike. basketball. Strategy G Strategy H 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 27 + 23• First I added 20 and 20 to get 40. + 25 which is 50. Then I added 7 and 3 to get 10. 20 + 20 = 40• Then I added 40 and 10 to get 50. 7 + 3 = 1040 + 10 = 50