**CODE: 171** 

# **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).
  - $\cdot$  Example: 9 + (1 + 7) = (9 + 1) + 7

### **2nd Grade Student Descriptions** Daniela (she/her) Mason (he/him) Jackie (she/they) CJ (they/them) Jackie is a white transgender Daniela is a Latina girl who Mason is a white boy who CJ is a gender fluid white speaks English as her first speaks English as his first girl who speaks English as child who speaks English as language. She has no language. He is on an IEP for her first language. She has no their first language. They have identified disabilities, and she severe ADHD. He receives identified disabilities. She no identified disabilities, and does not receive free or free or reduced lunch. He has receives free or reduced they do not receive free or reduced lunch. She has a a history of high success and lunch. She has a history of reduced lunch. They have a history of average success low participation during math average success and low history of high success and and low participation during lessons. He also enjoys participation during math average participation during math lessons. She also loves singing. lessons. She also loves math lessons. They also love to dance. animals. to draw and paint. Strategy B Strategy A 27 + 23• 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. 25 + 2Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 40 25 40 + 3 = 4325 + 2550 Liam (he/him) Camille (she/her) Carter (he/him) Grace (she/her) Liam is a white boy who Camille is a white girl who Carter is a Black boy who Grace is an Asian girl who speaks English as his first speaks French as her first speaks English as his first speaks English as her first language. He has no language. She is an EL language. He has no language. She has an IEP for identified disabilities, and he student who speaks English identified disabilities, and he dyslexia. She does not does not receive free or at an advanced level. She has receives free or reduced receive free or reduced lunch. reduced lunch. He has a no identified disabilities, and lunch. He has a history of She has a history of low history of average success she does not receive free or average success and little to success and average and average participation reduced lunch. She has a no participation during math participation during math during math lessons. He also history of high success and lessons. He also loves to cook lessons. She also plays loves comic books. high participation during math and bake. basketball. lessons. She also does karate. Strategy C Strategy D Step 1 1. I made 27 and 23 +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 0 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.

#### Adriel (he/him) Valentina (she/her) Jada (she/her) Ava (she/her) Adriel is an Indigenous boy Valentina is a Latina girl who Jada is a Black girl who Ava is a white girl who speaks English as her first language. who speaks English as his speaks English as her first speaks English as her first language. She has no She has no identified first language. He has no language. She has an IEP for identified disabilities, and he disabilities. She receives free speech impairment identified disabilities, and she receives free or reduced (stuttering). She does not does not receive free or or reduced lunch. She has a lunch. He has a history of receive free or reduced lunch. reduced lunch. She has a history of low success and low She has a history of average average success and low history of high success and participation during math success and low participation lessons. She also loves participation during math high participation during math lessons. He also loves to play during math lessons. She also lessons. She also plays on a gardening. soccer. enjoys spending time in softball team. nature. 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 50. Alejandro (he/him) Oliver (he/him) Angel (she/her) Mateo (he/him) Alejandro is a Latino boy who Oliver is a white boy who Angel is a Black girl who Mateo is a Latino boy who speaks Spanish as his first speaks English as his first speaks English as her first speaks Spanish as his first language. He is an EL student language. He has no language. She has no language. He is an EL student who speaks English at a identified disabilities, and he identified disabilities, and she who speaks English at an beginner level. He has no does not receive free or does not receive free or intermediate level. He has no identified disabilities. He reduced lunch. He has a reduced lunch. She has a identified disabilities. He receives free or reduced history of low success and low receives free or reduced history of high success and lunch. He has a history of low high participation during math participation during math lunch. He has a history of high success and low participation lessons. He also enjoys riding lessons. She also enjoys success and average during math lessons. He also making origami. his bike. participation during math loves to play Minecraft. lessons. He also likes to play the guitar. Strategy H Strategy G 1. 1. I made 27 and 23 with the blocks. 27 + 23• First I added 20 and 20 to get 40. 2. I pulled 2 apart from the Then I added 7 and 3 to get 10. 20 + 20 = 4027 to make 25. • Then I added 40 and 10 to get 50. 3. I put the 2 with the 23 to 7 + 3 = 10make 25. That makes 25 + 25 which is 50. 40 + 10 = 50