**CODE: 159** 

# **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** Mateo (he/him) Jada (she/her) Liam (he/him) Grace (she/her) Jada is a Black girl who Mateo is a Latino boy who Liam is a white boy who Grace is an Asian girl who speaks Spanish as his first speaks English as her first speaks English as his first speaks English as her first language. He is an EL student language. She has no language. He has no language. She has an IEP for who speaks English at an identified disabilities, and she identified disabilities, and he dyslexia. She does not intermediate level. He has no does not receive free or does not receive free or receive free or reduced lunch. identified disabilities. He reduced lunch. She has a reduced lunch. He has a She has a history of low receives free or reduced history of high success and history of average success success and average lunch. He has a history of high high participation during math and average participation participation during math success and average lessons. She also plays on a during math lessons. He also lessons. She also plays participation during math softball team. loves comic books. basketball. lessons. He also likes to play the guitar. 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. 25 + 2Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 4325 + 2550 Camille (she/her) Ava (she/her) Valentina (she/her) Adriel (he/him) Camille is a white girl who Ava is a white girl who speaks Valentina is a Latina girl who Adriel is an Indigenous boy speaks French as her first English as her first language. speaks English as her first who speaks English as his language. She is an EL She has no identified language. She has an IEP for first language. He has no student who speaks English disabilities. She receives free speech impairment identified disabilities, and he at an advanced level. She has or reduced lunch. She has a (stuttering). She does not receives free or reduced no identified disabilities, and history of low success and low receive free or reduced lunch. lunch. He has a history of she does not receive free or participation during math She has a history of average average success and low reduced lunch. She has a lessons. She also loves success and low participation participation during math history of high success and gardening. during math lessons. She also lessons. He also loves to play high participation during math enjoys spending time in soccer. lessons. She also does nature. 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, 25 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.

#### CJ (they/them) Daniela (she/her) Carter (he/him) Mason (he/him) CJ is a gender fluid white Daniela is a Latina girl who Carter is a Black boy who Mason is a white boy who child who speaks English as speaks English as her first speaks English as his first speaks English as his first their first language. They have language. She has no language. He has no language. He is on an IEP for no identified disabilities, and identified disabilities, and she identified disabilities, and he severe ADHD. He receives they do not receive free or does not receive free or receives free or reduced free or reduced lunch. He has reduced lunch. They have a reduced lunch. She has a lunch. He has a history of a history of high success and history of high success and history of average success average success and little to low participation during math average participation during and low participation during no participation during math lessons. He also enjoys math lessons. They also love math lessons. She also loves lessons. He also loves to cook singing. to draw and paint. to dance. and bake. 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 me to think about. Then I put the 1 up 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 Jackie (she/they) Alejandro (he/him) Oliver (he/him) Angel (she/her) Jackie is a white transgender Angel is a Black girl who Alejandro is a Latino boy who Oliver is a white boy who girl who speaks English as speaks English as her first speaks Spanish as his first speaks English as his first her first language. She has no language. She has no language. He is an EL student language. He has no who speaks English at a identified disabilities. She identified disabilities, and she identified disabilities, and he receives free or reduced does not receive free or beginner level. He has no does not receive free or identified disabilities. He lunch. She has a history of reduced lunch. She has a reduced lunch. He has a average success and low history of low success and low receives free or reduced history of high success and participation during math participation during math lunch. He has a history of low high participation during math lessons. She also loves success and low participation lessons. She also enjoys lessons. He also enjoys riding animals. making origami. during math lessons. He also his bike. loves to play Minecraft. 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