**CODE: 209** 

# **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 Mason (he/him) Adriel (he/him) Jada (she/her) Liam (he/him) Jada is a Black girl who Mason is a white boy who Adriel is an Indigenous boy Liam is a white boy who speaks English as his first who speaks English as his speaks English as her first speaks English as his first language. He is on an IEP for first language. He has no language. She has no language. He has no severe ADHD. He receives identified disabilities, and he identified disabilities, and she identified disabilities, and he free or reduced lunch. He has receives free or reduced does not receive free or does not receive free or reduced lunch. She has a a history of high success and lunch. He has a history of reduced lunch. He has a low participation during math average success and low history of high success and history of average success lessons. He also enjoys participation during math high participation during math and average participation singing. lessons. He also loves to play lessons. She also plays on a during math lessons. He also soccer. softball team. loves comic books. 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 40 + 3 = 4325 + 2550 Carter (he/him) Camille (she/her) Daniela (she/her) Ava (she/her) Carter is a Black boy who Camille is a white girl who Daniela is a Latina girl who Ava is a white girl who speaks speaks English as his first speaks French as her first speaks English as her first English as her first language. language. He has no language. She is an EL language. She has no She has no identified identified disabilities, and he student who speaks English identified disabilities, and she disabilities. She receives free receives free or reduced at an advanced level. She has does not receive free or or reduced lunch. She has a lunch. He has a history of no identified disabilities, and reduced lunch. She has a history of low success and low average success and little to she does not receive free or history of average success participation during math no participation during math reduced lunch. She has a and low participation during lessons. She also loves lessons. He also loves to cook history of high success and math lessons. She also loves gardening. and bake. high participation during math to dance. 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.

#### Alejandro (he/him) Mateo (he/him) Grace (she/her) Valentina (she/her) Alejandro is a Latino boy who Mateo is a Latino boy who Grace is an Asian girl who Valentina is a Latina girl who speaks Spanish as his first speaks Spanish as his first speaks English as her first speaks English as her first language. She has an IEP for language. She has an IEP for language. He is an EL student language. He is an EL student who speaks English at a who speaks English at an dyslexia. She does not speech impairment beginner level. He has no intermediate level. He has no receive free or reduced lunch. (stuttering). She does not identified disabilities. He identified disabilities. He She has a history of low receive free or reduced lunch. receives free or reduced receives free or reduced success and average She has a history of average lunch. He has a history of high success and low participation lunch. He has a history of low participation during math success and low participation success and average lessons. She also plays during math lessons. She also during math lessons. He also participation during math basketball. enjoys spending time in loves to play Minecraft. lessons. He also likes to play nature. the guitar. 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) Oliver (he/him) CJ (they/them) Angel (she/her) CJ is a gender fluid white Angel is a Black girl who Jackie is a white transgender Oliver is a white boy who girl who speaks English as speaks English as his first child who speaks English as speaks English as her first her first language. She has no language. He has no their first language. They have language. She has no identified disabilities. She identified disabilities, and he identified disabilities, and she no identified disabilities, and receives free or reduced does not receive free or they do not receive free or does not receive free or reduced lunch. They have a reduced lunch. She has a lunch. She has a history of reduced lunch. He has a history of high success and history of low success and low average success and low history of high success and participation during math high participation during math average participation during participation during math lessons. He also enjoys riding math lessons. They also love lessons. She also enjoys lessons. She also loves animals. his bike. to draw and paint. making origami. Strategy H Strategy G 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