**CODE: 199** 

# **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 Jackie (she/they) CJ (they/them) Grace (she/her) Camille (she/her) Jackie is a white transgender Grace is an Asian girl who CJ is a gender fluid white Camille is a white girl who speaks French as her first girl who speaks English as child who speaks English as speaks English as her first her first language. She has no their first language. They have language. She has an IEP for language. She is an EL identified disabilities. She no identified disabilities, and dyslexia. She does not student who speaks English receives free or reduced they do not receive free or receive free or reduced lunch. at an advanced level. She has lunch. She has a history of reduced lunch. They have a She has a history of low no identified disabilities, and average success and low history of high success and success and average she does not receive free or participation during math average participation during participation during math reduced lunch. She has a lessons. She also loves math lessons. They also love lessons. She also plays history of high success and high participation during math animals. to draw and paint. basketball. lessons. She also does karate. Strategy A Strategy B 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. 25 40 + 3 = 43 25 + 2550 Valentina (she/her) Jada (she/her) Adriel (he/him) Oliver (he/him) Valentina is a Latina girl who Jada is a Black girl who Adriel is an Indigenous boy Oliver is a white boy who speaks English as her first speaks English as her first who speaks English as his speaks English as his first language. She has an IEP for language. She has no first language. He has no language. He has no speech impairment identified disabilities, and she identified disabilities, and he identified disabilities, and he (stuttering). She does not does not receive free or receives free or reduced does not receive free or receive free or reduced lunch. reduced lunch. She has a lunch. He has a history of reduced lunch. He has a She has a history of average history of high success and average success and low history of high success and success and low participation high participation during math participation during math high participation during math during math lessons. She also lessons. She also plays on a lessons. He also loves to play lessons. He also enjoys riding enjoys spending time in softball team. soccer. his bike. nature. Strategy C Strategy D +2 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 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.

and got 50.

Then I only needed to add 25 more, so I made another jump

#### Liam (he/him) Mason (he/him) Carter (he/him) Angel (she/her) Liam is a white boy who Mason is a white boy who Carter is a Black boy who Angel is a Black girl who speaks English as his first speaks English as his first speaks English as his first speaks English as her first language. She has no language. He has no language. He is on an IEP for language. He has no identified disabilities, and she identified disabilities, and he severe ADHD. He receives identified disabilities, and he does not receive free or free or reduced lunch. He has receives free or reduced does not receive free or reduced lunch. He has a a history of high success and lunch. He has a history of reduced lunch. She has a history of average success low participation during math average success and little to history of low success and low and average participation lessons. He also enjoys no participation during math participation during math during math lessons. He also lessons. He also loves to cook lessons. She also enjoys singing. loves comic books. and bake. making origami. 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 Mateo (he/him) Alejandro (he/him) Ava (she/her) Daniela (she/her) Mateo is a Latino boy who Ava is a white girl who speaks Daniela is a Latina girl who Alejandro is a Latino boy who English as her first language. speaks Spanish as his first speaks English as her first speaks Spanish as his first language. He is an EL student. She has no identified language. She has no language. He is an EL student who speaks English at an disabilities. She receives free identified disabilities, and she who speaks English at a intermediate level. He has no or reduced lunch. She has a does not receive free or beginner level. He has no history of low success and low reduced lunch. She has a identified disabilities. He identified disabilities. He receives free or reduced participation during math history of average success receives free or reduced lunch. He has a history of high lessons. She also loves and low participation during lunch. He has a history of low success and average math lessons. She also loves success and low participation gardening. during math lessons. He also participation during math to dance. lessons. He also likes to play loves to play Minecraft. the guitar. Strategy G Strategy H 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