**CODE: 99** 

# **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 Grace (she/her) Jada (she/her) Daniela (she/her) Angel (she/her) Jada is a Black girl who Daniela is a Latina girl who Angel is a Black girl who Grace is an Asian girl who speaks English as her first language. She has an IEP for language. She has no language. She has no language. She has no dyslexia. She does not identified disabilities, and she identified disabilities, and she identified disabilities, and she receive free or reduced lunch. does not receive free or does not receive free or does not receive free or reduced lunch. She has a She has a history of low reduced lunch. She has a reduced lunch. She has a success and average history of high success and history of average success history of low success and low participation during math high participation during math and low participation during participation during math lessons. She also plays lessons. She also plays on a math lessons. She also loves lessons. She also enjoys basketball. softball team. to dance. making origami. 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) Mason (he/him) Carter (he/him) Oliver (he/him) Liam is a white boy who Mason is a white boy who Carter is a Black boy who Oliver is a white boy who speaks English as his first language. He has no language. He is on an IEP for language. He has no language. He has no identified disabilities, and he severe ADHD. He receives identified disabilities, and he 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. He has a history of average success low participation during math average success and little to history of high success and and average participation lessons. He also enjoys no participation during math high participation during math during math lessons. He also singing. lessons. He also loves to cook lessons. He also enjoys riding loves comic books. and bake. his bike. 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.

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

That makes 25.

and got 50.

#### Alejandro (he/him) Adriel (he/him) CJ (they/them) Mateo (he/him) Adriel is an Indigenous boy Alejandro is a Latino boy who : Mateo is a Latino boy who CJ is a gender fluid white speaks Spanish as his first speaks Spanish as his first who speaks English as his child who speaks English as first language. He has no their first language. They have language. He is an EL student language. He is an EL student who speaks English at a who speaks English at an identified disabilities, and he no identified disabilities, and beginner level. He has no intermediate level. He has no receives free or reduced they do not receive free or identified disabilities. He identified disabilities. He lunch. He has a history of reduced lunch. They have a receives free or reduced receives free or reduced average success and low history of high success and lunch. He has a history of high average participation during lunch. He has a history of low participation during math success and low participation success and average lessons. He also loves to play math lessons. They also love during math lessons. He also participation during math to draw and paint. soccer. loves to play Minecraft. lessons. He also likes to play 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 Camille (she/her) Valentina (she/her) Jackie (she/they) Ava (she/her) Jackie is a white transgender Camille is a white girl who Ava is a white girl who speaks. Valentina is a Latina girl who English as her first language. girl who speaks English as speaks French as her first speaks English as her first her first language. She has no language. She is an EL She has no identified language. She has an IEP for disabilities. She receives free identified disabilities. She student who speaks English speech impairment receives free or reduced at an advanced level. She has or reduced lunch. She has a (stuttering). She does not no identified disabilities, and history of low success and low receive free or reduced lunch. lunch. She has a history of she does not receive free or participation during math She has a history of average average success and low success and low participation participation during math reduced lunch. She has a lessons. She also loves lessons. She also loves history of high success and gardening. during math lessons. She also animals. high participation during math enjoys spending time in lessons. She also does nature. karate. Strategy G Strategy H 1. 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