**CODE: 194** 

# **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** Carter (he/him) Daniela (she/her) Grace (she/her) Angel (she/her) Grace is an Asian girl who Angel is a Black girl who Carter is a Black boy who Daniela is a Latina girl who speaks English as his first speaks English as her first speaks English as her first speaks English as her first language. He has no language. She has no language. She has an IEP for language. She has no identified disabilities, and he identified disabilities, and she dyslexia. She does not identified disabilities, and she receives free or reduced does not receive free or receive free or reduced lunch. I does not receive free or lunch. He has a history of reduced lunch. She has a She has a history of low reduced lunch. She has a average success and little to history of average success success and average history of low success and low no participation during math and low participation during participation during math participation during math lessons. He also loves to cook math lessons. She also loves lessons. She also plays lessons. She also enjoys and bake. to dance. basketball. 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 CJ (they/them) Oliver (he/him) Ava (she/her) Alejandro (he/him) CJ is a gender fluid white Oliver is a white boy who Ava is a white girl who speaks. Alejandro is a Latino boy who child who speaks English as speaks English as his first English as her first language. speaks Spanish as his first their first language. They have language. He has no She has no identified language. He is an EL student no identified disabilities, and identified disabilities, and he disabilities. She receives free who speaks English at a they do not receive free or does not receive free or or reduced lunch. She has a beginner level. He has no reduced lunch. They have a reduced lunch. He has a history of low success and low identified disabilities. He history of high success and history of high success and participation during math receives free or reduced average participation during high participation during math lessons. She also loves lunch. He has a history of low math lessons. They also love lessons. He also enjoys riding gardening. success and low participation to draw and paint. his bike. during math lessons. He also loves to play Minecraft. 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 Λ 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.

### Valentina (she/her) Jackie (she/they) Camille (she/her) Jada (she/her) Jackie is a white transgender | Camille is a white girl who Valentina is a Latina girl who Jada is a Black girl who girl who speaks English as speaks French as her first speaks English as her first speaks English as her first her first language. She has no language. She is an EL language. She has an IEP for language. She has no identified disabilities. She identified disabilities, and she student who speaks English speech impairment receives free or reduced at an advanced level. She has (stuttering). She does not does not receive free or lunch. She has a history of no identified disabilities, and receive free or reduced lunch. reduced lunch. She has a she does not receive free or She has a history of average average success and low history of high success and success and low participation high participation during math participation during math reduced lunch. She has a lessons. She also loves history of high success and during math lessons. She also lessons. She also plays on a animals. high participation during math enjoys spending time in softball team. lessons. She also does nature. karate. Strategy F Strategy E 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 Mason (he/him) Mateo (he/him) Liam (he/him) Adriel (he/him) Adriel is an Indigenous boy Liam is a white boy who Mason is a white boy who Mateo is a Latino boy who speaks English as his first who speaks English as his speaks Spanish as his first speaks English as his first language. He is on an IEP for first language. He has no language. He is an EL student language. He has no identified disabilities, and he identified disabilities, and he severe ADHD. He receives who speaks English at an free or reduced lunch. He has receives free or reduced intermediate level. He has no does not receive free or identified disabilities. He reduced lunch. He has a a history of high success and lunch. He has a history of low participation during math average success and low receives free or reduced history of average success lessons. He also enjoys participation during math lunch. He has a history of high and average participation singing. lessons. He also loves to play success and average during math lessons. He also soccer. participation during math loves comic books. 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