**CODE: 193** 

# **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 CJ (they/them) Angel (she/her) Oliver (he/him) Mason (he/him) CJ is a gender fluid white Angel is a Black girl who Oliver is a white 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 does not receive free or free or reduced lunch. He has reduced lunch. They have a reduced lunch. She has a reduced lunch. He has a a history of high success and history of high success and history of low success and low history of high success and low participation during math average participation during participation during math high participation during math lessons. He also enjoys math lessons. They also love lessons. She also enjoys lessons. He also enjoys riding singing. to draw and paint. making origami. his bike. ! -----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. 40 25 40 + 3 = 4325 + 2550 Jackie (she/they) Grace (she/her) Ava (she/her) Alejandro (he/him) Jackie is a white transgender Grace is an Asian girl who Ava is a white girl who speaks. Alejandro is a Latino boy who girl who speaks English as speaks English as her first English as her first language. speaks Spanish as his first her first language. She has no language. She has an IEP for She has no identified language. He is an EL student identified disabilities. She dyslexia. She does not disabilities. She receives free who speaks English at a receives free or reduced receive free or reduced lunch. or reduced lunch. She has a beginner level. He has no lunch. She has a history of She has a history of low history of low success and low identified disabilities. He average success and low success and average participation during math receives free or reduced participation during math participation during math lessons. She also loves lunch. He has a history of low lessons. She also loves lessons. She also plays gardening. success and low participation animals. basketball. 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) Camille (she/her) Daniela (she/her) Carter (he/him) Camille is a white girl who Daniela is a Latina girl who Carter is a Black boy who Valentina is a Latina girl who speaks French as her first speaks English as her first speaks English as his first speaks English as her first language. She has an IEP for language. She is an EL language. She has no language. He has no student who speaks English identified disabilities, and she identified disabilities, and he speech impairment at an advanced level. She has does not receive free or receives free or reduced (stuttering). She does not no identified disabilities, and reduced lunch. She has a lunch. He has a history of receive free or reduced lunch. she does not receive free or history of average success average success and little to She has a history of average and low participation during success and low participation reduced lunch. She has a no participation during math history of high success and math lessons. She also loves lessons. He also loves to cook during math lessons. She also high participation during math to dance. and bake. enjoys spending time in lessons. She also does nature. karate. 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 • 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 Adriel (he/him) Mateo (he/him) Liam (he/him) Jada (she/her) Liam is a white boy who Jada is a Black girl who Adriel is an Indigenous boy Mateo is a Latino boy who speaks English as his first speaks English as her first who speaks English as his speaks Spanish as his first language. He has no language. She has no first language. He has no language. He is an EL student identified disabilities, and he identified disabilities, and she identified disabilities, and he who speaks English at an does not receive free or does not receive free or receives free or reduced intermediate level. He has no reduced lunch. He has a reduced lunch. She has a lunch. He has a history of identified disabilities. He history of high success and average success and low receives free or reduced history of average success and average participation high participation during math participation during math lunch. He has a history of high lessons. She also plays on a lessons. He also loves to play success and average during math lessons. He also loves comic books. participation during math softball team. soccer. lessons. He also likes to play the guitar. Strategy G Strategy H 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