**CODE: 186** 

# **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** Camille (she/her) Valentina (she/her) Oliver (he/him) Jada (she/her) Camille is a white girl who Valentina is a Latina girl who Oliver is a white boy who Jada is a Black girl who speaks French as her first speaks English as her first speaks English as his first speaks English as her first language. She is an EL language. She has an IEP for language. He has no language. She has no student who speaks English speech impairment identified disabilities, and he identified disabilities, and she at an advanced level. She has (stuttering). She does not does not receive free or does not receive free or receive free or reduced lunch. no identified disabilities, and reduced lunch. He has a reduced lunch. She has a she does not receive free or She has a history of average history of high success and history of high success and reduced lunch. She has a success and low participation high participation during math high participation during math history of high success and during math lessons. She also lessons. He also enjoys riding lessons. She also plays on a high participation during math enjoys spending time in his bike. softball team. lessons. She also does nature. karate. Strategy A Strategy B • 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 + 3 = 4325 + 2550 CJ (they/them) Mateo (he/him) Jackie (she/they) Alejandro (he/him) CJ is a gender fluid white Mateo is a Latino boy who Jackie is a white transgender Aleiandro is a Latino boy who child who speaks English as speaks Spanish as his first girl who speaks English as speaks Spanish as his first their first language. They have language. He is an EL student her first language. She has no language. He is an EL student no identified disabilities, and who speaks English at an identified disabilities. She who speaks English at a they do not receive free or intermediate level. He has no receives free or reduced beginner level. He has no reduced lunch. They have a identified disabilities. He lunch. She has a history of identified disabilities. He history of high success and receives free or reduced average success and low receives free or reduced average participation during lunch. He has a history of high participation during math lunch. He has a history of low math lessons. They also love success and average lessons. She also loves success and low participation to draw and paint. participation during math animals. during math lessons. He also lessons. He also likes to play loves to play Minecraft. the guitar. 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, 25 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.

#### Adriel (he/him) Ava (she/her) Angel (she/her) Grace (she/her) Ava is a white girl who speaks Angel is a Black girl who Adriel is an Indigenous boy Grace is an Asian girl who English as her first language. speaks English as her first who speaks English as his speaks English as her first She has no identified first language. He has no language. She has an IEP for language. She has no disabilities. She receives free identified disabilities, and she identified disabilities, and he dyslexia. She does not or reduced lunch. She has a does not receive free or receives free or reduced receive free or reduced lunch. history of low success and low reduced lunch. She has a lunch. He has a history of She has a history of low participation during math history of low success and low average success and low success and average lessons. She also loves participation during math participation during math participation during math lessons. She also enjoys lessons. He also loves to play !lessons. She also plays gardening. basketball. making origami. soccer. 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 Mason (he/him) Liam (he/him) Carter (he/him) Daniela (she/her) Mason is a white boy who Carter is a Black boy who Liam is a white boy who Daniela is a Latina girl who speaks English as his first speaks English as his first speaks English as his first speaks English as her first language. He is on an IEP for language. He has no language. She has no language. He has no severe ADHD. He receives identified disabilities, and he identified disabilities, and he identified disabilities, and she free or reduced lunch. He has receives free or reduced does not receive free or does not receive free or reduced lunch. He has a reduced lunch. She has a a history of high success and lunch. He has a history of low participation during math average success and little to history of average success history of average success and low participation during lessons. He also enjoys no participation during math and average participation lessons. He also loves to cook during math lessons. He also math lessons. She also loves singing. and bake. loves comic books. to dance. Strategy H Strategy G 1. I made 27 and 23 with 27 + 23 the blocks. • 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