**CODE: 170** 

# **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** Valentina (she/her) Adriel (he/him) Mateo (he/him) Carter (he/him) Mateo is a Latino boy who Valentina is a Latina girl who Adriel is an Indigenous boy Carter is a Black boy who speaks English as her first who speaks English as his speaks Spanish as his first speaks English as his first language. She has an IEP for first language. He has no language. He is an EL student language. He has no speech impairment identified disabilities, and he who speaks English at an identified disabilities, and he (stuttering). She does not receives free or reduced intermediate level. He has no receives free or reduced receive free or reduced lunch. lunch. He has a history of identified disabilities. He lunch. He has a history of She has a history of average average success and low receives free or reduced average success and little to success and low participation participation during math lunch. He has a history of high no participation during math during math lessons. She also lessons. He also loves to play success and average lessons. He also loves to cook enjoys spending time in soccer. participation during math and bake. nature. lessons. He also likes to play the guitar. Strategy B Strategy A • 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 = 4325 + 2550 Alejandro (he/him) Daniela (she/her) Camille (she/her) Jackie (she/they) Aleiandro is a Latino boy who Daniela is a Latina girl who Camille is a white girl who Jackie is a white transgender speaks Spanish as his first speaks English as her first speaks French as her first girl who speaks English as language. He is an EL student language. She has no language. She is an EL her first language. She has no who speaks English at a identified disabilities, and she student who speaks English identified disabilities. She beginner level. He has no does not receive free or at an advanced level. She has receives free or reduced identified disabilities. He reduced lunch. She has a no identified disabilities, and lunch. She has a history of receives free or reduced history of average success she does not receive free or average success and low lunch. He has a history of low and low participation during reduced lunch. She has a participation during math success and low participation math lessons. She also loves history of high success and lessons. She also loves during math lessons. He also to dance. high participation during math animals. loves to play Minecraft. lessons. She also does karate. Strategy D Strategy C 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.

#### Oliver (he/him) Angel (she/her) Ava (she/her) Mason (he/him) Angel is a Black girl who Ava is a white girl who speaks Oliver is a white boy who Mason is a white boy who speaks English as her first English as her first language. speaks English as his first speaks English as his first She has no identified language. She has no language. He has no language. He is on an IEP for identified disabilities, and she disabilities. She receives free identified disabilities, and he severe ADHD. He receives does not receive free or or reduced lunch. She has a does not receive free or free or reduced lunch. He has reduced lunch. She has a history of low success and low reduced lunch. He has a a history of high success and history of low success and low participation during math history of high success and low participation during math participation during math lessons. She also loves high participation during math lessons. He also enjoys lessons. She also enjoys lessons. He also enjoys riding singing. gardening. making origami. his bike. 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 CJ (they/them) Liam (he/him) Jada (she/her) Grace (she/her) Jada is a Black girl who Liam is a white boy who CJ is a gender fluid white Grace is an Asian girl who speaks English as her first speaks English as his first child who speaks English as speaks English as her first language. She has no language. He has no their first language. They have language. She has an IEP for identified disabilities, and she identified disabilities, and he no identified disabilities, and dvslexia. She does not does not receive free or does not receive free or they do not receive free or receive free or reduced lunch. reduced lunch. She has a reduced lunch. They have a reduced lunch. He has a She has a history of low history of high success and history of average success history of high success and success and average high participation during math and average participation average participation during participation during math during math lessons. He also math lessons. They also love lessons. She also plays on a lessons. She also plays softball team. loves comic books. to draw and paint. basketball. Strategy G Strategy H 1. 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