CODE: 80

# **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) Alejandro (he/him) CJ (they/them) Adriel (he/him) Alejandro is a Latino boy who CJ is a gender fluid white Grace is an Asian girl who Adriel is an Indigenous boy speaks English as her first speaks Spanish as his first child who speaks English as who speaks English as his language. She has an IEP for language. He is an EL student their first language. They have first language. He has no dyslexia. She does not who speaks English at a no identified disabilities, and identified disabilities, and he receive free or reduced lunch. beginner level. He has no they do not receive free or receives free or reduced She has a history of low identified disabilities. He reduced lunch. They have a lunch. He has a history of success and average receives free or reduced history of high success and average success and low participation during math lunch. He has a history of low average participation during participation during math lessons. She also plays success and low participation math lessons. They also love lessons. He also loves to play basketball. during math lessons. He also to draw and paint. soccer. loves to play Minecraft. 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. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 4325 + 2550 Angel (she/her) Jada (she/her) Ava (she/her) Mason (he/him) Angel is a Black girl who Jada is a Black girl who Ava is a white girl who speaks ! Mason is a white boy who speaks English as her first speaks English as her first English as her first language. speaks English as his first language. She has no language. She has no She has no identified language. He is on an IEP for disabilities. She receives free identified disabilities, and she identified disabilities, and she severe ADHD. He receives does not receive free or does not receive free or or reduced lunch. She has a free or reduced lunch. He has reduced lunch. She has a reduced lunch. She has a history of low success and low a history of high success and history of low success and low history of high success and participation during math low participation during math lessons. She also loves participation during math high participation during math lessons. He also enjoys gardening. lessons. She also enjoys lessons. She also plays on a singing. making origami. softball team. 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.

#### Jackie (she/they) Camille (she/her) Carter (he/him) Valentina (she/her) Jackie is a white transgender | Camille is a white girl who Carter is a Black boy who Valentina is a Latina girl who girl who speaks English as speaks French as her first speaks English as his first speaks English as her first her first language. She has no language. She is an EL language. She has an IEP for language. He has no identified disabilities. She student who speaks English identified disabilities, and he speech impairment receives free or reduced at an advanced level. She has receives free or reduced (stuttering). She does not lunch. She has a history of no identified disabilities, and lunch. He has a history of receive free or reduced lunch. she does not receive free or She has a history of average average success and low average success and little to success and low participation participation during math reduced lunch. She has a no participation during math lessons. She also loves history of high success and lessons. He also loves to cook during math lessons. She also animals. high participation during math and bake. enjoys spending time in 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 Oliver (he/him) Liam (he/him) Daniela (she/her) Mateo (he/him) Oliver is a white boy who Daniela is a Latina girl who Liam is a white boy who Mateo is a Latino boy who speaks English as his first speaks English as her first speaks English as his first speaks Spanish as his first language. He has no language. She has no language. He is an EL student language. He has no 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 intermediate level. He has no does not receive free or reduced lunch. He has a reduced lunch. She has a identified disabilities. He reduced lunch. He has a history of high success and history of average success receives free or reduced history of average success high participation during math and low participation during lunch. He has a history of high and average participation lessons. He also enjoys riding math lessons. She also loves success and average during math lessons. He also his bike. to dance. 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. 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