CODE: 92

# **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** Jackie (she/they) Daniela (she/her) Oliver (he/him) Mateo (he/him) Jackie is a white transgender Daniela is a Latina girl who Oliver is a white boy who Mateo is a Latino boy who girl who speaks English as speaks English as her first speaks English as his first speaks Spanish as his first her first language. She has no language. She has no language. He has no language. He is an EL student identified disabilities. She identified disabilities, and she identified disabilities, and he who speaks English at an receives free or reduced does not receive free or does not receive free or intermediate level. He has no lunch. She has a history of reduced lunch. She has a reduced lunch. He has a identified disabilities. He average success and low history of average success history of high success and receives free or reduced participation during math and low participation during high participation during math lunch. He has a history of high lessons. She also loves math lessons. She also loves lessons. He also enjoys riding success and average animals. to dance. his bike. participation during math lessons. He also likes to play the guitar. 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. 25 40 + 3 = 4325 + 2550 CJ (they/them) Mason (he/him) Valentina (she/her) Grace (she/her) Mason is a white boy who CJ is a gender fluid white Valentina is a Latina girl who Grace is an Asian girl who speaks English as his first speaks English as her first child who speaks English as speaks English as her first language. He is on an IEP for language. She has an IEP for their first language. They have language. She has an IEP for severe ADHD. He receives speech impairment no identified disabilities, and dvslexia. She does not free or reduced lunch. He has (stuttering). She does not they do not receive free or receive free or reduced lunch. a history of high success and receive free or reduced lunch. reduced lunch. They have a She has a history of low low participation during math She has a history of average history of high success and success and average lessons. He also enjoys success and low participation average participation during participation during math lessons. She also plays singing. during math lessons. She also math lessons. They also love enjoys spending time in to draw and paint. basketball. nature. Strategy C Strategy D +2 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, 23 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.

#### Camille (she/her) Carter (he/him) Liam (he/him) Ava (she/her) Carter is a Black boy who Liam is a white boy who Camille is a white girl who Ava is a white girl who speaks English as her first language. speaks English as his first speaks English as his first speaks French as her first She has no identified language. He has no language. He has no language. She is an EL disabilities. She receives free identified disabilities, and he identified disabilities, and he student who speaks English receives free or reduced does not receive free or at an advanced level. She has or reduced lunch. She has a lunch. He has a history of reduced lunch. He has a no identified disabilities, and history of low success and low she does not receive free or average success and little to participation during math history of average success lessons. She also loves no participation during math and average participation reduced lunch. She has a lessons. He also loves to cook during math lessons. He also history of high success and gardening. and bake. loves comic books. high participation during math lessons. She also does 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 Adriel (he/him) Alejandro (he/him) Angel (she/her) Jada (she/her) Adriel is an Indigenous boy Aleiandro is a Latino boy who Angel is a Black girl who Jada is a Black girl who who speaks English as his speaks Spanish as his first speaks English as her first speaks English as her first first language. He has no language. He is an EL student language. She has no language. She has no identified disabilities, and he identified disabilities, and she identified disabilities, and she who speaks English at a receives free or reduced beginner level. He has no does not receive free or does not receive free or identified disabilities. He reduced lunch. She has a reduced lunch. She has a lunch. He has a history of average success and low receives free or reduced history of low success and low history of high success and participation during math lunch. He has a history of low participation during math high participation during math success and low participation lessons. She also plays on a lessons. He also loves to play lessons. She also enjoys soccer. during math lessons. He also making origami. softball team. loves to play Minecraft. Strategy G Strategy H 1. I made 27 and 23 with 1. 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