CODE: 56

# **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** Liam (he/him) Adriel (he/him) Daniela (she/her) Valentina (she/her) Liam is a white boy who Adriel is an Indigenous boy Daniela is a Latina girl who Valentina is a Latina girl who speaks English as her first speaks English as his first who speaks English as his speaks English as her first language. He has no first language. He has no language. She has no language. She has an IEP for identified disabilities, and he identified disabilities, and he identified disabilities, and she speech impairment does not receive free or receives free or reduced does not receive free or (stuttering). She does not reduced lunch. She has a reduced lunch. He has a lunch. He has a history of receive free or reduced lunch. history of average success average success and low history of average success She has a history of average and average participation participation during math and low participation during success and low participation during math lessons. She also during math lessons. He also lessons. He also loves to play math lessons. She also loves loves comic books. soccer. to dance. enjoys spending time in nature. 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. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 40 + 3 = 4325 + 25Oliver (he/him) Jackie (she/they) Mason (he/him) Camille (she/her) Oliver is a white boy who Jackie is a white transgender Mason is a white boy who Camille is a white girl who speaks English as his first girl who speaks English as speaks English as his first speaks French as her first language. He has no her first language. She has no language. He is on an IEP for language. She is an EL identified disabilities, and he identified disabilities. She severe ADHD. He receives student who speaks English does not receive free or receives free or reduced free or reduced lunch. He has at an advanced level. She has reduced lunch. He has a lunch. She has a history of a history of high success and no identified disabilities, and history of high success and average success and low low participation during math she does not receive free or high participation during math participation during math lessons. He also enjoys reduced lunch. She has a lessons. He also enjoys riding lessons. She also loves singing. history of high success and his bike. animals. high participation during math lessons. She also does karate. 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, 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.

#### Alejandro (he/him) Carter (he/him) Ava (she/her) Angel (she/her) Alejandro is a Latino boy who : Carter is a Black boy who Ava is a white girl who speaks : Angel is a Black girl who English as her first language. speaks Spanish as his first speaks English as his first speaks English as her first She has no identified language. He is an EL student language. He has no language. She has no who speaks English at a identified disabilities, and he disabilities. She receives free identified disabilities, and she beginner level. He has no receives free or reduced or reduced lunch. She has a does not receive free or identified disabilities. He lunch. He has a history of history of low success and low reduced lunch. She has a receives free or reduced average success and little to participation during math history of low success and low lessons. She also loves lunch. He has a history of low no participation during math participation during math success and low participation lessons. He also loves to cook lessons. She also enjoys gardening. during math lessons. He also and bake. making origami. loves to play Minecraft. 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 50. Jada (she/her) Grace (she/her) Mateo (he/him) CJ (they/them) Mateo is a Latino boy who CJ is a gender fluid white Jada is a Black girl who Grace is an Asian girl who speaks Spanish as his first child who speaks English as speaks English as her first speaks English as her first language. He is an EL student their first language. They have language. She has no language. She has an IEP for who speaks English at an no identified disabilities, and identified disabilities, and she dyslexia. She does not intermediate level. He has no does not receive free or receive free or reduced lunch. they do not receive free or identified disabilities. He reduced lunch. They have a reduced lunch. She has a She has a history of low history of high success and history of high success and receives free or reduced success and average lunch. He has a history of high average participation during high participation during math participation during math math lessons. They also love lessons. She also plays success and average lessons. She also plays on a participation during math to draw and paint. softball team. basketball. lessons. He also likes to play the guitar. 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