CODE: 91

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

#### Camille (she/her) Alejandro (he/him) Grace (she/her) Carter (he/him) Grace is an Asian girl who Carter is a Black boy who Camille is a white girl who Alejandro is a Latino boy who speaks English as her first speaks English as his first speaks French as her first speaks Spanish as his first language. She has an IEP for language. He has no language. She is an EL language. He is an EL student dyslexia. She does not identified disabilities, and he student who speaks English who speaks English at a receive free or reduced lunch. receives free or reduced at an advanced level. She has beginner level. He has no She has a history of low lunch. He has a history of no identified disabilities, and identified disabilities. He she does not receive free or receives free or reduced success and average average success and little to lunch. He has a history of low participation during math no participation during math reduced lunch. She has a lessons. She also plays lessons. He also loves to cook history of high success and success and low participation basketball. and bake. high participation during math during math lessons. He also lessons. She also does loves to play Minecraft. 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 Valentina (she/her) Liam (he/him) Jada (she/her) Daniela (she/her) Jada is a Black girl who Valentina is a Latina girl who Daniela is a Latina girl who Liam is a white boy who speaks English as her first speaks English as her first speaks English as her first speaks English as his first language. She has no language. She has an IEP for language. She has no language. He has no identified disabilities, and she identified disabilities, and she identified disabilities, and he speech impairment does not receive free or (stuttering). She does not does not receive free or does not receive free or reduced lunch. She has a receive free or reduced lunch. reduced lunch. She has a reduced lunch. He has a history of high success and history of average success She has a history of average history of average success success and low participation high participation during math and low participation during and average participation math lessons. She also loves lessons. She also plays on a during math lessons. She also during math lessons. He also softball team. enjoys spending time in to dance. loves comic books. nature. 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