**CODE: 226** 

# **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** Daniela (she/her) Adriel (he/him) Mateo (he/him) Carter (he/him) Mateo is a Latino boy who Daniela 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 no first language. He has no language. He is an EL student language. He has no identified disabilities, and she identified disabilities, and he who speaks English at an identified disabilities, and he does not receive free or receives free or reduced intermediate level. He has no receives free or reduced reduced lunch. She has a lunch. He has a history of identified disabilities. He lunch. He has a history of history of average success average success and low receives free or reduced average success and little to and low participation during participation during math lunch. He has a history of high no participation during math lessons. He also loves to cook math lessons. She also loves lessons. He also loves to play success and average to dance. soccer. participation during math and bake. lessons. He also likes to play the guitar. 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. 25 40 + 3 = 4325 + 2550 Mason (he/him) Jada (she/her) Jackie (she/they) Oliver (he/him) Mason is a white boy who Jada is a Black girl who Jackie is a white transgender Oliver is a white boy who speaks English as his first speaks English as her first girl who speaks English as speaks English as his first language. He is on an IEP for language. She has no her first language. She has no language. He has no severe ADHD. He receives identified disabilities, and she identified disabilities. She identified disabilities, and he free or reduced lunch. He has does not receive free or receives free or reduced does not receive free or a history of high success and reduced lunch. She has a lunch. She has a history of reduced lunch. He has a low participation during math history of high success and average success and low history of high success and lessons. He also enjoys high participation during math participation during math high participation during math singing. lessons. She also plays on a lessons. She also loves lessons. He also enjoys riding softball team. animals. his bike. 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, 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.

#### CJ (they/them) Valentina (she/her) Liam (he/him) Angel (she/her) CJ is a gender fluid white Valentina is a Latina girl who Liam is a white boy who Angel is a Black 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 an IEP for their first language. They have language. She has no language. He has no speech impairment identified disabilities, and he no identified disabilities, and identified disabilities, and she (stuttering). She does not does not receive free or they do not receive free or does not receive free or receive free or reduced lunch. reduced lunch. He has a reduced lunch. They have a reduced lunch. She has a She has a history of average history of average success history of high success and history of low success and low success and low participation average participation during and average participation participation during math during math lessons. She also during math lessons. He also math lessons. They also love lessons. She also enjoys enjoys spending time in loves comic books. to draw and paint. making origami. nature. Strategy E Strategy F First, I added 7 and 3 23 + 27 27 to get 10. I put a zero I made it 23 + 27 because that's easier for + 23 under the 7. me to think about. 23 + (2 + 25)50 • Then I put the 1 up Then I broke the 27 into 2 and 25. (23 + 2) = 25above the 2. Last I Then I combined the 2 with the 23, and I got added 1 + 2 + 2 to get 50. Grace (she/her) Camille (she/her) Alejandro (he/him) Ava (she/her) Camille is a white girl who Alejandro is a Latino boy who Grace is an Asian girl who Ava is a white girl who speaks English as her first language. speaks French as her first speaks Spanish as his first speaks English as her first language. She is an EL language. He is an EL student language. She has an IEP for She has no identified student who speaks English who speaks English at a dyslexia. She does not disabilities. She receives free at an advanced level. She has beginner level. He has no receive free or reduced lunch. or reduced lunch. She has a no identified disabilities, and identified disabilities. He She has a history of low history of low success and low receives free or reduced she does not receive free or success and average participation during math reduced lunch. She has a participation during math lessons. She also loves lunch. He has a history of low lessons. She also plays history of high success and success and low participation gardening. during math lessons. He also high participation during math basketball. lessons. She also does loves to play Minecraft. karate. Strategy H Strategy G 1. I made 27 and 23 with 1. the blocks. 27 + 23 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