**CODE: 217** 

# **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** Daniela (she/her) Grace (she/her) Liam (he/him) Jackie (she/they) Jackie is a white transgender Daniela is a Latina girl who Grace is an Asian girl who Liam is a white boy who speaks English as her first speaks English as her first speaks English as his first girl who speaks English as language. She has no language. She has an IEP for language. He has no her first language. She has no identified disabilities, and she dyslexia. She does not identified disabilities, and he identified disabilities. She does not receive free or receive free or reduced lunch. does not receive free or receives free or reduced reduced lunch. She has a She has a history of low reduced lunch. He has a lunch. She has a history of history of average success success and average history of average success average success and low and low participation during participation during math and average participation participation during math math lessons. She also loves lessons. She also plays during math lessons. He also lessons. She also loves to dance. basketball. loves comic books. animals. 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. 40 25 40 + 3 = 4325 + 2550 Jada (she/her) Oliver (he/him) Valentina (she/her) Adriel (he/him) Jada is a Black girl who Oliver is a white boy who Valentina is a Latina girl who Adriel is an Indigenous boy speaks English as her first speaks English as his first speaks English as her first who speaks English as his language. She has no language. He has no language. She has an IEP for first language. He has no identified disabilities, and she identified disabilities, and he speech impairment identified disabilities, and he does not receive free or does not receive free or (stuttering). She does not receives free or reduced reduced lunch. She has a reduced lunch. He has a receive free or reduced lunch. Junch. He has a history of history of high success and history of high success and She has a history of average average success and low high participation during math high participation during math success and low participation participation during math lessons. She also plays on a lessons. He also enjoys riding during math lessons. She also lessons. He also loves to play enjoys spending time in softball team. his bike. soccer. nature. Strategy D Strategy C 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.

and got 50.

Then I only needed to add 25 more, so I made another jump

#### Carter (he/him) Angel (she/her) Mason (he/him) Ava (she/her) Carter is a Black boy who Angel is a Black girl who Mason is a white boy who Ava is a white girl who speaks English as her first language. speaks English as his first speaks English as her first speaks English as his first She has no identified language. He has no language. She has no language. He is on an IEP for disabilities. She receives free identified disabilities, and he identified disabilities, and she severe ADHD. He receives receives free or reduced does not receive free or free or reduced lunch. He has or reduced lunch. She has a lunch. He has a history of reduced lunch. She has a a history of high success and history of low success and low average success and little to history of low success and low low participation during math participation during math no participation during math participation during math lessons. He also eniovs lessons. She also loves lessons. He also loves to cook lessons. She also enjoys singing. gardening. and bake. making origami. 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 Mateo (he/him) CJ (they/them) Alejandro (he/him) Camille (she/her) Mateo is a Latino boy who Alejandro is a Latino boy who CJ is a gender fluid white Camille is a white girl who speaks Spanish as his first speaks Spanish as his first child who speaks English as speaks French as her first their first language. They have language. She is an EL language. He is an EL student language. He is an EL student who speaks English at an who speaks English at a no identified disabilities, and student who speaks English intermediate level. He has no beginner level. He has no they do not receive free or at an advanced level. She has reduced lunch. They have a no identified disabilities, and identified disabilities. He identified disabilities. He receives free or reduced receives free or reduced history of high success and she does not receive free or average participation during reduced lunch. She has a lunch. He has a history of high lunch. He has a history of low success and average success and low participation math lessons. They also love history of high success and high participation during math participation during math during math lessons. He also to draw and paint. loves to play Minecraft. lessons. He also likes to play lessons. She also does the guitar. karate. Strategy G Strategy H 1. I made 27 and 23 with 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