**CODE: 144** 

# **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** Jada (she/her) Ava (she/her) Alejandro (he/him) Oliver (he/him) Alejandro is a Latino boy who Jada is a Black girl who Ava is a white girl who speaks Oliver is a white boy who English as her first language. speaks Spanish as his first speaks English as her first speaks English as his first language. She has no She has no identified language. He is an EL student language. He has no identified disabilities, and she disabilities. She receives free who speaks English at a identified disabilities, and he or reduced lunch. She has a does not receive free or beginner level. He has no does not receive free or identified disabilities. He reduced lunch. She has a history of low success and low reduced lunch. He has a history of high success and participation during math receives free or reduced history of high success and high participation during math lessons. She also loves lunch. He has a history of low high participation during math lessons. She also plays on a gardening. success and low participation lessons. He also enjoys riding softball team. during math lessons. He also his bike. loves to play Minecraft. 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. Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 40 + 3 = 4325 + 2550 Valentina (she/her) Adriel (he/him) CJ (they/them) Mason (he/him) Valentina is a Latina girl who Adriel is an Indigenous boy CJ is a gender fluid white Mason is a white boy who speaks English as her first who speaks English as his child who speaks English as speaks English as his first language. She has an IEP for first language. He has no their first language. They have language. He is on an IEP for speech impairment identified disabilities, and he no identified disabilities, and severe ADHD. He receives (stuttering). She does not receives free or reduced they do not receive free or free or reduced lunch. He has receive free or reduced lunch. Junch. He has a history of reduced lunch. They have a a history of high success and She has a history of average average success and low history of high success and low participation during math success and low participation participation during math average participation during lessons. He also enjoys math lessons. They also love during math lessons. She also lessons. He also loves to play singing. enjoys spending time in soccer. to draw and paint. nature. Strategy C Strategy D 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.

#### Daniela (she/her) Grace (she/her) Jackie (she/they) Liam (he/him) Daniela is a Latina girl who Grace is an Asian girl who Jackie is a white transgender Liam is a white boy who speaks English as her first speaks English as her first girl who speaks English as speaks English as his first her first language. She has no language. He has no language. She has no language. She has an IEP for identified disabilities. She identified disabilities, and she dyslexia. She does not identified disabilities, and he does not receive free or receive free or reduced lunch. receives free or reduced does not receive free or reduced lunch. She has a She has a history of low lunch. She has a history of reduced lunch. He has a history of average success success and average average success and low history of average success and low participation during and average participation participation during math participation during math during math lessons. He also math lessons. She also loves lessons. She also plays lessons. She also loves to dance. basketball. animals. loves comic books. 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 me to think about. Then I put the 1 up 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 Camille (she/her) Angel (she/her) Mateo (he/him) Carter (he/him) Camille is a white girl who Angel is a Black girl who Mateo is a Latino boy who Carter is a Black boy who speaks French as her first speaks English as her first speaks Spanish as his first speaks English as his first language. She is an EL language. She has no language. He is an EL student language. He has no student who speaks English identified disabilities, and she who speaks English at an identified disabilities, and he at an advanced level. She has does not receive free or intermediate level. He has no receives free or reduced reduced lunch. She has a identified disabilities. He lunch. He has a history of no identified disabilities, and she does not receive free or history of low success and low receives free or reduced average success and little to reduced lunch. She has a lunch. He has a history of high no participation during math participation during math history of high success and lessons. She also enjoys success and average lessons. He also loves to cook high participation during math making origami. participation during math and bake. lessons. She also does lessons. He also likes to play karate. the guitar. Strategy G Strategy H 1. I made 27 and 23 with 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