**CODE: 137** 

# **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 Oliver (he/him) Jada (she/her) Grace (she/her) Valentina (she/her) Jada is a Black girl who Grace is an Asian girl who Oliver is a white boy who Valentina is a Latina girl who speaks English as his first speaks English as her first speaks English as her first speaks English as her first language. He has no language. She has no language. She has an IEP for language. She has an IEP for identified disabilities, and he identified disabilities, and she dyslexia. She does not speech impairment does not receive free or does not receive free or receive free or reduced lunch. (stuttering). She does not reduced lunch. He has a reduced lunch. She has a She has a history of low receive free or reduced lunch. history of high success and history of high success and success and average She has a history of average high participation during math high participation during math participation during math success and low participation during math lessons. She also lessons. He also enjoys riding lessons. She also plays on a lessons. She also plays his bike. softball team. basketball. 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 + 25Mateo (he/him) Camille (she/her) Mason (he/him) Jackie (she/they) Mateo is a Latino boy who Camille is a white girl who Mason is a white boy who Jackie is a white transgender speaks Spanish as his first speaks French as her first speaks English as his first girl who speaks English as language. He is an EL student language. She is an EL language. He is on an IEP for her first language. She has no who speaks English at an student who speaks English severe ADHD. He receives identified disabilities. She intermediate level. He has no at an advanced level. She has free or reduced lunch. He has i receives free or reduced identified disabilities. He no identified disabilities, and a history of high success and lunch. She has a history of receives free or reduced she does not receive free or low participation during math average success and low lunch. He has a history of high reduced lunch. She has a lessons. He also enjoys participation during math success and average history of high success and singing. lessons. She also loves participation during math high participation during math animals. lessons. He also likes to play lessons. She also does the guitar. 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.

#### CJ (they/them) Alejandro (he/him) Liam (he/him) Ava (she/her) Liam is a white boy who Alejandro is a Latino boy who : CJ is a gender fluid white Ava is a white girl who speaks English as her first language. speaks Spanish as his first child who speaks English as speaks English as his first She has no identified language. He is an EL student their first language. They have language. He has no disabilities. She receives free who speaks English at a no identified disabilities, and identified disabilities, and he beginner level. He has no they do not receive free or does not receive free or or reduced lunch. She has a identified disabilities. He reduced lunch. They have a reduced lunch. He has a history of low success and low receives free or reduced history of high success and history of average success participation during math average participation during lessons. She also loves lunch. He has a history of low and average participation success and low participation math lessons. They also love during math lessons. He also gardening. during math lessons. He also to draw and paint. loves comic books. 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. Daniela (she/her) Adriel (he/him) Angel (she/her) Carter (he/him) Daniela is a Latina girl who Adriel is an Indigenous boy Angel is a Black girl who Carter is a Black boy who speaks English as her first who speaks English as his speaks English as her first speaks English as his first language. She has no first language. He has no language. She has no language. He has no identified disabilities, and she identified disabilities, and he identified disabilities, and she identified disabilities, and he does not receive free or receives free or reduced does not receive free or receives free or reduced reduced lunch. She has a lunch. He has a history of reduced lunch. She has a lunch. He has a history of history of average success average success and low history of low success and low average success and little to participation during math and low participation during participation during math no participation during math math lessons. She also loves lessons. He also loves to play lessons. She also enjoys lessons. He also loves to cook to dance. making origami. and bake. Strategy G Strategy H 1. 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