**CODE: 106** 

# **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 Valentina (she/her) Adriel (he/him) Mateo (he/him) Angel (she/her) Mateo is a Latino boy who Angel is a Black girl who Valentina is a Latina girl who Adriel is an Indigenous boy speaks English as her first who speaks English as his speaks Spanish as his first speaks English as her first language. She has an IEP for first language. He has no language. He is an EL student language. She has no speech impairment identified disabilities, and he who speaks English at an identified disabilities, and she (stuttering). She does not receives free or reduced intermediate level. He has no does not receive free or receive free or reduced lunch. lunch. He has a history of identified disabilities. He reduced lunch. She has a She has a history of average average success and low receives free or reduced history of low success and low success and low participation participation during math lunch. He has a history of high participation during math during math lessons. She also lessons. He also loves to play success and average lessons. She also enjoys enjoys spending time in soccer. participation during math making origami. nature. lessons. He also likes to play the guitar. Strategy B Strategy A • 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 CJ (they/them) Mason (he/him) Liam (he/him) Alejandro (he/him) CJ is a gender fluid white Mason is a white boy who Liam is a white boy who Aleiandro is a Latino boy who child who speaks English as speaks English as his first speaks English as his first speaks Spanish as his first their first language. They have language. He is on an IEP for language. He has no language. He is an EL student no identified disabilities, and severe ADHD. He receives identified disabilities, and he who speaks English at a they do not receive free or free or reduced lunch. He has does not receive free or beginner level. He has no reduced lunch. They have a a history of high success and reduced lunch. He has a identified disabilities. He history of high success and low participation during math history of average success receives free or reduced average participation during lessons. He also enjoys and average participation lunch. He has a history of low during math lessons. He also math lessons. They also love singing. success and low participation to draw and paint. loves comic books. during math lessons. He also loves to play Minecraft. 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.

#### Oliver (he/him) Ava (she/her) Daniela (she/her) Camille (she/her) Oliver is a white boy who Ava is a white girl who speaks Daniela is a Latina girl who Camille is a white girl who English as her first language. speaks English as her first speaks English as his first speaks French as her first She has no identified language. She has no language. He has no language. She is an EL disabilities. She receives free identified disabilities, and she identified disabilities, and he student who speaks English or reduced lunch. She has a does not receive free or does not receive free or at an advanced level. She has history of low success and low reduced lunch. She has a reduced lunch. He has a no identified disabilities, and she does not receive free or participation during math history of average success history of high success and lessons. She also loves and low participation during high participation during math reduced lunch. She has a math lessons. She also loves lessons. He also enjoys riding history of high success and gardening. to dance. his bike. high participation during math lessons. She also does 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 Carter (he/him) Jada (she/her) Jackie (she/they) Grace (she/her) Jada is a Black girl who Jackie is a white transgender Carter is a Black boy who Grace is an Asian girl who speaks English as her first girl who speaks English as speaks English as his first speaks English as her first language. She has no her first language. She has no language. He has no language. She has an IEP for dyslexia. She does not identified disabilities, and she identified disabilities. She identified disabilities, and he does not receive free or receives free or reduced receives free or reduced receive free or reduced lunch. reduced lunch. She has a She has a history of low lunch. She has a history of lunch. He has a history of history of high success and average success and low average success and little to success and average high participation during math participation during math no participation during math participation during math lessons. She also plays lessons. She also plays on a lessons. She also loves lessons. He also loves to cook softball team. animals. and bake. basketball. 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