**CODE: 189** 

# **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** Jada (she/her) Angel (she/her) Ava (she/her) Valentina (she/her) Angel is a Black girl who Ava is a white girl who speaks Valentina is a Latina girl who Jada is a Black girl who English as her first language. speaks English as her first speaks English as her first speaks English as her first She has no identified language. She has no language. She has no language. She has an IEP for identified disabilities, and she identified disabilities, and she disabilities. She receives free speech impairment does not receive free or does not receive free or or reduced lunch. She has a (stuttering). She does not reduced lunch. She has a reduced lunch. She has a history of low success and low receive free or reduced lunch. history of high success and history of low success and low participation during math She has a history of average high participation during math participation during math lessons. She also loves success and low participation during math lessons. She also lessons. She also plays on a lessons. She also enjoys gardening. softball team. making origami. enjoys spending time in 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 + 2550 Carter (he/him) Mateo (he/him) Daniela (she/her) Camille (she/her) Carter is a Black boy who Mateo is a Latino boy who Daniela is a Latina girl who Camille is a white girl who speaks English as his first speaks Spanish as his first speaks English as her first speaks French as her first language. He has no language. He is an EL student language. She has no language. She is an EL identified disabilities, and he who speaks English at an identified disabilities, and she student who speaks English receives free or reduced intermediate level. He has no does not receive free or at an advanced level. She has lunch. He has a history of identified disabilities. He reduced lunch. She has a no identified disabilities, and average success and little to receives free or reduced history of average success she does not receive free or no participation during math lunch. He has a history of high and low participation during reduced lunch. She has a lessons. He also loves to cook success and average math lessons. She also loves history of high success and and bake. participation during math to dance. high participation during math 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) Jackie (she/they) Grace (she/her) CJ is a gender fluid white Jackie is a white transgender Alejandro is a Latino boy who Grace is an Asian girl who child who speaks English as girl who speaks English as speaks Spanish as his first speaks English as her first their first language. They have her first language. She has no language. He is an EL student language. She has an IEP for no identified disabilities, and identified disabilities. She who speaks English at a dyslexia. She does not they do not receive free or receives free or reduced beginner level. He has no receive free or reduced lunch. reduced lunch. They have a lunch. She has a history of identified disabilities. He She has a history of low receives free or reduced history of high success and average success and low success and average average participation during lunch. He has a history of low participation during math participation during math math lessons. They also love lessons. She also loves success and low participation lessons. She also plays to draw and paint. animals. during math lessons. He also basketball. loves to play Minecraft. 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 50. Oliver (he/him) Liam (he/him) Adriel (he/him) Mason (he/him) Oliver is a white boy who Liam is a white boy who Adriel is an Indigenous boy Mason is a white boy who speaks English as his first speaks English as his first who speaks English as his speaks English as his first language. He has no language. He has no first language. He has no language. He is on an IEP for identified disabilities, and he identified disabilities, and he identified disabilities, and he severe ADHD. He receives does not receive free or does not receive free or receives free or reduced free or reduced lunch. He has reduced lunch. He has a reduced lunch. He has a lunch. He has a history of a history of high success and average success and low low participation during math history of high success and history of average success and average participation high participation during math participation during math lessons. He also enjoys lessons. He also enjoys riding during math lessons. He also lessons. He also loves to play singing. his bike. loves comic books. soccer. Strategy G Strategy H 1. 1. I made 27 and 23 with 27 + 23 the blocks • 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