**CODE: 19** 

# **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** Valentina (she/her) Ava (she/her) Adriel (he/him) Oliver (he/him) Adriel is an Indigenous boy Valentina is a Latina girl who Ava is a white girl who speaks Oliver is a white boy who English as her first language. who speaks English as his speaks English as her first speaks English as his first language. She has an IEP for She has no identified first language. He has no language. He has no speech impairment disabilities. She receives free identified disabilities, and he identified disabilities, and he or reduced lunch. She has a (stuttering). She does not receives free or reduced does not receive free or receive free or reduced lunch. history of low success and low lunch. He has a history of reduced lunch. He has a She has a history of average participation during math average success and low history of high success and success and low participation lessons. She also loves participation during math high participation during math during math lessons. She also gardening. lessons. He also loves to play lessons. He also enjoys riding enjoys spending time in soccer. his bike. nature. Strategy A Strategy B 27 + 23 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. 25 40 + 3 = 4325 + 2550 Carter (he/him) Jada (she/her) Angel (she/her) Mateo (he/him) Carter is a Black boy who Jada is a Black girl who Angel is a Black girl who Mateo is a Latino boy who speaks English as his first speaks English as her first speaks English as her first speaks Spanish as his first language. He has no language. She has no language. She has no language. He is an EL student identified disabilities, and she identified disabilities, and he identified disabilities, and she who speaks English at an receives free or reduced does not receive free or does not receive free or intermediate level. He has no lunch. He has a history of reduced lunch. She has a reduced lunch. She has a identified disabilities. He average success and little to history of high success and history of low success and low receives free or reduced no participation during math high participation during math participation during math lunch. He has a history of high lessons. He also loves to cook lessons. She also plays on a lessons. She also enjoys success and average and bake. softball team. making origami. participation during math lessons. He also likes to play the guitar. 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.

#### Alejandro (he/him) CJ (they/them) Grace (she/her) Daniela (she/her) Grace is an Asian girl who Daniela is a Latina girl who Alejandro is a Latino boy who CJ is a gender fluid white speaks English as her first speaks English as her first speaks Spanish as his first child who speaks English as language. She has an IEP for language. She has no language. He is an EL student their first language. They have dyslexia. She does not identified disabilities, and she who speaks English at a no identified disabilities, and receive free or reduced lunch. does not receive free or beginner level. He has no they do not receive free or She has a history of low reduced lunch. She has a identified disabilities. He reduced lunch. They have a history of average success receives free or reduced success and average history of high success and average participation during participation during math and low participation during lunch. He has a history of low lessons. She also plays math lessons. She also loves success and low participation math lessons. They also love basketball. to dance. during math lessons. He also to draw and paint. 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. Camille (she/her) Liam (he/him) Mason (he/him) Jackie (she/they) Camille is a white girl who Liam is a white boy who Mason is a white boy who Jackie is a white transgender speaks French as her first speaks English as his first speaks English as his first girl who speaks English as language. She is an EL language. He has no language. He is on an IEP for her first language. She has no student who speaks English identified disabilities, and he severe ADHD. He receives identified disabilities. She at an advanced level. She has does not receive free or free or reduced lunch. He has receives free or reduced no identified disabilities, and reduced lunch. He has a a history of high success and lunch. She has a history of she does not receive free or low participation during math history of average success average success and low reduced lunch. She has a and average participation lessons. He also enjoys participation during math during math lessons. He also history of high success and singing. lessons. She also loves high participation during math loves comic books. animals. lessons. She also does karate. 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