**CODE: 246** 

# **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** Carter (he/him) Ava (she/her) Camille (she/her) Daniela (she/her) Camille is a white girl who Carter is a Black boy who Ava is a white girl who speaks Daniela is a Latina girl who English as her first language. speaks French as her first speaks English as his first speaks English as her first language. He has no She has no identified language. She is an EL language. She has no identified disabilities, and he disabilities. She receives free student who speaks English identified disabilities, and she receives free or reduced or reduced lunch. She has a at an advanced level. She has idoes not receive free or lunch. He has a history of history of low success and low no identified disabilities, and reduced lunch. She has a average success and little to participation during math she does not receive free or history of average success no participation during math lessons. She also loves reduced lunch. She has a and low participation during lessons. He also loves to cook gardening. history of high success and math lessons. She also loves high participation during math to dance. and bake. lessons. She also does karate. Strategy B Strategy A 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. 25 + 2Then I knew that 25 plus 25 is 50 because 2 quarters are 50 cents. 25 40 + 3 = 4325 + 2550 Angel (she/her) Oliver (he/him) Liam (he/him) Grace (she/her) Angel is a Black girl who Oliver is a white boy who Liam is a white boy who Grace is an Asian girl who speaks English as her first speaks English as his first speaks English as his first speaks English as her first language. She has no language. He has no language. He has no language. She has an IEP for identified disabilities, and she identified disabilities, and he identified disabilities, and he dvslexia. She does not does not receive free or does not receive free or does not receive free or receive free or reduced lunch. reduced lunch. She has a reduced lunch. He has a reduced lunch. He has a She has a history of low history of low success and low history of high success and history of average success success and average participation during math high participation during math and average participation participation during math lessons. She also enjoys lessons. He also enjoys riding during math lessons. He also lessons. She also plays his bike. making origami. loves comic books. basketball. 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.

#### Alejandro (he/him) Mateo (he/him) Valentina (she/her) Jada (she/her) Valentina is a Latina girl who Jada is a Black girl who Alejandro is a Latino boy who Mateo is a Latino boy who speaks English as her first speaks English as her first speaks Spanish as his first speaks Spanish as his first language. She has an IEP for language. She has no language. He is an EL student language. He is an EL student speech impairment identified disabilities, and she who speaks English at a who speaks English at an (stuttering). She does not does not receive free or beginner level. He has no intermediate level. He has no receive free or reduced lunch. reduced lunch. She has a identified disabilities. He identified disabilities. He receives free or reduced She has a history of average history of high success and receives free or reduced success and low participation lunch. He has a history of low lunch. He has a history of high high participation during math during math lessons. She also lessons. She also plays on a success and low participation success and average enjoys spending time in softball team. during math lessons. He also participation during math loves to play Minecraft. lessons. He also likes to play nature. Strategy F Strategy E First, I added 7 and 3 23 + 27 27 to get 10. I put a zero • I made it 23 + 27 because that's easier for + 23 under the 7. me to think about 23 + (2 + 25)50 Then I put the 1 up Then I broke the 27 into 2 and 25. (23 + 2) = 25above the 2. Last I Then I combined the 2 with the 23, and I got added 1 + 2 + 2 to get Adriel (he/him) CJ (they/them) Jackie (she/they) Mason (he/him) CJ is a gender fluid white Adriel is an Indigenous boy Jackie is a white transgender Mason is a white boy who child who speaks English as girl who speaks English as who speaks English as his speaks English as his first their first language. They have her first language. She has no first language. He has no language. He is on an IEP for identified disabilities. She identified disabilities, and he no identified disabilities, and severe ADHD. He receives they do not receive free or receives free or reduced receives free or reduced free or reduced lunch. He has reduced lunch. They have a lunch. She has a history of lunch. He has a history of a history of high success and history of high success and average success and low average success and low low participation during math average participation during participation during math participation during math lessons. He also enjoys math lessons. They also love lessons. He also loves to play singing. lessons. She also loves to draw and paint. animals. soccer. Strategy G Strategy H 1. I made 27 and 23 with the blocks 27 + 23• 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