CODE: 90

# **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** Carter (he/him) Angel (she/her) Alejandro (he/him) Jackie (she/they) Angel is a Black girl who Carter is a Black boy who Alejandro is a Latino boy who : Jackie is a white transgender speaks Spanish as his first speaks English as his first speaks English as her first girl who speaks English as language. He has no language. She has no language. He is an EL student her first language. She has no identified disabilities, and he identified disabilities, and she who speaks English at a identified disabilities. She receives free or reduced does not receive free or beginner level. He has no receives free or reduced identified disabilities. He lunch. He has a history of reduced lunch. She has a lunch. She has a history of average success and little to history of low success and low receives free or reduced average success and low no participation during math participation during math lunch. He has a history of low participation during math lessons. He also loves to cook lessons. She also enjoys success and low participation Elessons. She also loves animals. and bake. making origami. during math lessons. He also loves to play Minecraft. Strategy A Strategy B 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. 40 + 3 = 4325 + 2550 Valentina (she/her) Jada (she/her) Adriel (he/him) Camille (she/her) Valentina is a Latina girl who Jada is a Black girl who Adriel is an Indigenous boy Camille is a white girl who speaks English as her first speaks English as her first who speaks English as his speaks French as her first language. She has an IEP for language. She has no first language. He has no language. She is an EL speech impairment identified disabilities, and she identified disabilities, and he student who speaks English (stuttering). She does not does not receive free or receives free or reduced at an advanced level. She has receive free or reduced lunch. reduced lunch. She has a lunch. He has a history of no identified disabilities, and She has a history of average history of high success and average success and low she does not receive free or success and low participation high participation during math participation during math reduced lunch. She has a lessons. He also loves to play history of high success and during math lessons. She also lessons. She also plays on a enjoys spending time in softball team. soccer. high participation during math nature. lessons. She also does 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, 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.

#### CJ (they/them) Oliver (he/him) Liam (he/him) Daniela (she/her) CJ is a gender fluid white Oliver is a white boy who Liam is a white boy who Daniela is a Latina girl who child who speaks English as speaks English as his first speaks English as his first speaks English as her first their first language. They have language. He has no language. She has no language. He has no identified disabilities, and she no identified disabilities, and identified disabilities, and he identified disabilities, and he they do not receive free or does not receive free or does not receive free or does not receive free or reduced lunch. They have a reduced lunch. He has a reduced lunch. He has a reduced lunch. She has a history of high success and history of high success and history of average success history of average success average participation during and average participation and low participation during high participation during math math lessons. They also love lessons. He also enjoys riding during math lessons. He also math lessons. She also loves his bike. to draw and paint. loves comic books. to dance. 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 me to think about. Then I put the 1 up 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 Mason (he/him) Grace (she/her) Ava (she/her) Mateo (he/him) Mason is a white boy who Grace is an Asian girl who Ava is a white girl who speaks Mateo is a Latino boy who speaks English as his first speaks English as her first English as her first language. speaks Spanish as his first language. He is on an IEP for She has no identified language. He is an EL student language. She has an IEP for who speaks English at an severe ADHD. He receives dvslexia. She does not disabilities. She receives free free or reduced lunch. He has receive free or reduced lunch. or reduced lunch. She has a intermediate level. He has no a history of high success and She has a history of low history of low success and low identified disabilities. He low participation during math success and average participation during math receives free or reduced lessons. She also loves lunch. He has a history of high lessons. He also enjoys participation during math lessons. She also plays success and average singing. gardening. basketball. participation during math lessons. He also likes to play the guitar. Strategy H Strategy G 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