**CODE: 133** 

# **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) Grace (she/her) Liam (he/him) Oliver (he/him) Valentina is a Latina girl who Grace is an Asian girl who Liam is a white boy who Oliver is a white boy who speaks English as her first speaks English as her first speaks English as his first speaks English as his first language. She has an IEP for language. She has an IEP for language. He has no language. He has no speech impairment dyslexia. She does not identified disabilities, and he identified disabilities, and he (stuttering). She does not receive free or reduced lunch. does not receive free or does not receive free or receive free or reduced lunch. She has a history of low reduced lunch. He has a reduced lunch. He has a She has a history of average success and average history of average success history of high success and success and low participation participation during math and average participation high participation during math during math lessons. She also lessons. She also plays during math lessons. He also lessons. He also enjoys riding enjoys spending time in basketball. loves comic books. 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 Mateo (he/him) Carter (he/him) Camille (she/her) Angel (she/her) Mateo is a Latino boy who Carter is a Black boy who Camille is a white girl who Angel is a Black girl who speaks Spanish as his first speaks English as his first speaks French as her first speaks English as her first language. He is an EL student language. He has no language. She is an EL language. She has no who speaks English at an identified disabilities, and he student who speaks English identified disabilities, and she intermediate level. He has no receives free or reduced at an advanced level. She has does not receive free or identified disabilities. He lunch. He has a history of no identified disabilities, and reduced lunch. She has a receives free or reduced average success and little to she does not receive free or history of low success and low lunch. He has a history of high no participation during math reduced lunch. She has a participation during math success and average lessons. He also loves to cook history of high success and lessons. She also enjoys participation during math and bake. high participation during math making origami. 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.

#### Jada (she/her) Adriel (he/him) Mason (he/him) Daniela (she/her) Jada is a Black girl who Adriel is an Indigenous boy Mason is a white boy who Daniela is a Latina girl who speaks English as her first who speaks English as his speaks English as his first speaks English as her first language. She has no first language. He has no language. He is on an IEP for language. She has no identified disabilities, and she identified disabilities, and he severe ADHD. He receives identified disabilities, and she does not receive free or receives free or reduced free or reduced lunch. He has does not receive free or reduced lunch. She has a lunch. He has a history of a history of high success and reduced lunch. She has a history of high success and average success and low low participation during math history of average success high participation during math participation during math lessons. He also eniovs and low participation during lessons. She also plays on a lessons. He also loves to play math lessons. She also loves singing. softball team. to dance. soccer. 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 Jackie (she/they) Alejandro (he/him) CJ (they/them) Ava (she/her) Alejandro is a Latino boy who CJ is a gender fluid white Jackie is a white transgender Ava is a white girl who speaks English as her first language. speaks Spanish as his first child who speaks English as girl who speaks English as her first language. She has no She has no identified language. He is an EL student their first language. They have who speaks English at a no identified disabilities, and identified disabilities. She disabilities. She receives free beginner level. He has no they do not receive free or receives free or reduced or reduced lunch. She has a reduced lunch. They have a lunch. She has a history of history of low success and low identified disabilities. He receives free or reduced history of high success and average success and low participation during math average participation during participation during math lessons. She also loves lunch. He has a history of low success and low participation math lessons. They also love lessons. She also loves gardening. animals. during math lessons. He also to draw and paint. loves to play Minecraft. 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